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AN
EPITOME

OF
MR. FORSYTH'S TREATISE
ON THE
CULTURE AND MANAGEMENT
OF
FRUIT-TREES.

ALSO,
NOTES ON AMERICAN GARDENING AND FRUITS:
WITH DESIGNS FOR PROMOTING THE RIPEN-
ING OF FRUITS, AND SECURING THEM
AS FAMILY COMFORTS:

AND FURTHER,
OF ECONOMICAL PRINCIPLES IN BUILDING
FARMERS' HABITATIONS.

BY AN AMERICAN FARMER.

PHILADELPHIA:

PRINTED BY T. L. PLOWMAN,
FOR JOHN MORGAN, NO. 26, SOUTH THIRD-
STREET.

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1803.



SB356
F95

SB357
F95

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THERE is a difference respecting country habitations as they are recommended by the author of essays and notes on husbandry, and what is said of country habitations in this work. The former was written upon the happening of certain events, which seem to have induced a hasty recommendation of the principles on which to build country habitations, with the especial purpose of effectually guarding against their being destroyed by fire, and also particularly for preventing their being easily broke into by force or surprise. At first, it was published singly, in a pamphlet; and afterwards inserted in the volume of collected essays and notes on husbandry. The present editor being to recommend a mode of building country habitations upon more enlarged principles, and that

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will be the most suitable to farms in *America*, in particular; some considerable alterations are designed, for rendering the American farmers' habitations not only secure against fire, but also the best adapted to the business and employments of farmers, and the habits and manners of country people; at the same time that, in certain situations, that form of building may be preferred, and the air-holes in the recesses occasionally applied in the defence of the doors and windows, against outrages of burglars, as far as the perfectly square angles of a building will admit of it.

The editor has condensed this work, that it might not run into a high price: but the author's thirteen plates of engravings could not be omitted, and it is hoped, the two plates now added will be satisfactory in illustrating the subjects they relate to—These articles of expence could not be avoided.

A TREATISE
ON THE
CULTURE AND MANAGEMENT
OF
FRUIT-TREES, &c.

OF APRICOTS.

The names and qualities of Apricots commonly cultivated in England, &c.

THE *Masculine Apricot* is small and round; the earliest in ripening, about the end of *July*, in England. It is chiefly esteemed for its tart taste. Red towards the sun; a greenish yellow on the other side. The *Orange*: large, but rather dry and insipid: fitter for tarts than for the table: a deep yellow colour when ripe, the latter end of August. It is considered the best for preserving, in England. The *Algiers*: a flatted, oval shaped fruit; a straw colour, juicy, and high flavour. Ripens the middle of August, in England.—The *Roman*: larger than the *Algiers*, rounder; of a deep yellow, and not quite so juicy. Ripe the middle or end of August, in England. The *Turkey*: larger than the Ro-

man ; sharper, more globular, flesh firmer and drier : ripens the end of August, in England. The *Breda* is large, round, and deep yellow : the flesh soft and juicy : an excellent fruit. Ripe the end of August, in England. The *Brussels* : in very great esteem ; bearing well on standards and large dwarfs. The fruit, a middling size, red towards the sun, with many dark spots ; of a greenish yellow on the other side. It has a brisk flavor ; not mealy or doughy. On a wall, ripens in August ; but not till the end of September in standards, in England. *Moor-park*, called also, Anson's, Temple's, and Dunmore's *Breda* : a fine fruit ; ripens end of August, in England. The *Peach-apricot* : the finest and largest of all apricots ; ripens in August, in England. The *Black-apricot* : highly esteemed in France : this is also called the *Alexandrian* apricot ; and, says Forsyth, it will prove an acquisition in England.

Mr. Forsyth then gives, a regular *succession* of fruit for accommodating those who have *small gardens*, from the *larger selections* ; retaining only the best kinds ; of which one or two trees of a sort may be planted, according to the wants of families. The like *selection* he applies to other fruits—peaches, plums, pears, &c.

A SELECTION OF APRICOTS FOR A SMALL GARDEN.

The Masculine; the Roman; the Orange; the
Breda; and the Moor-Park.

*Of Planting, Pruning, and Training Apricots, in
England.*

PLANT in *autumn*, soon as the leaf begins to fall. Choose from the nursery, those having the strongest and cleanest stems. If they have been previously headed down, of two or three years growth, they will bear, and fill up, sooner than others.—Prefer them with one stem. If there be two stems, cut away one, however fair.

The *borders* wherein the trees are to be planted, if new, are to be made two and a half, or three feet deep, of good, light, fresh loam. If to be planted where trees had stood, it may be proper to take out the old mould, at least three feet deep and four feet wide, filling up with fresh loam; and plant the trees eight inches higher than the level of the old border, to allow for sinking of the earth, that they may not be too deep in the ground; but more of this in treating of Pear-trees.

When the trees are planted, by no means head them down till *April* or *May*, when they begin to throw out fresh shoots. Cut *strong trees*, a foot from the ground; the *weak ones*, about half that length.

In backward seasons, *head down* not so early; never till the buds are fairly broken; always cut sloping (towards the wall, if a wall is intended,) and as near to an eye as possible, that the young leading shoot may cover the cut, [pl. I. fig. 1.] which operation should be again performed in the ensuing March or April. The shoots that are then thrown out are to be trained *horizontally*, to cover the wall. The number to be left may be three to six on each side, according to the strength of the main shoot. With finger and thumb rub off the foreright shoots *all over* the tree, except a few, if wanted, to fill up the wall, near the body of it. [pl. I. fig. 1.]

In the second year shorten the horizontal shoots in the same manner, according to their growth;—and so on, every year, till the *wall* is completely covered from top to bottom.

Some gardeners head down the trees at the time of planting ; which often proves fatal to them.

Where large branches have been cut off, from *full-grown trees*, in a careless manner, and the wounds left to nature, the whole tree is infected with the gum and canker. In which case, to save or restore the tree's fruitfulness and health, pare off the cankered part of the bark with a draw-knife. Often the white, inner bark, is found infected, which also is to be cut away ; *not leaving a single brown or black spot* ; which are like dots made with a pen.

All the branches so *cut* and *pared*, are instantly to be *covered* with the composition in a liquid state : the preparation and application whereof, see post. Wherever the knife has been used, the *composition* must be *immediately* applied.

I have, says Mr. *Forsyth*, a great dislike to *autumnal* pruning of fruit-trees ; especially of *stone* fruit. By pruning these, the canker is apt to follow it. In the *spring*, when the sap begins to flow, and will follow the knife, the lips will quickly grow.

Covering apricots (and other fruit-trees) will prevent the blossom from destruction by frost, cutting winds, &c. In severe weather *cover them before the flowers begin to expand*; for they often drop off before they are opened.

The best *covering* is old *fish-nets*, put on three-fold; with a few branches of dry fern, stuck in among the branches before the nets are put on. They assist greatly in breaking high winds. The practice of covering with *mats* in the *night*, and taking them off in the *day*, is injurious in exposing the trees frequently to the cutting winds. Covering with branches of spruce fir, is also injurious, from being too close, and promoting the curl of the leaves of the trees, and the shoots to *break* very weak; whereas the *nets* admit of a free circulation of air, yet break the force of the winds. It rains or snows, sometimes, in the forepart of the night, and freezes towards morning; the drops are then found hanging in icicles on the meshes, while the tree is almost dry.

In England, a west aspect is reckoned preferable for the *general crop*. A few trees they plant on a south aspect, for an early supply; and for a late supply, a few on an east aspect.

PLUMS,

Selected by Mr. Forsyth for a small garden, in England; with certain notices on their culture, &c. there.

THE selection recommended by Mr. Forsyth for his small garden, consists of—The Jaunhative; Early Damask; Orleans; La Royal; Green Gage (sorts); Draps d'Or; Saint Catherine, and Imperatrice. The Magnum Bonum, for baking; and the Winesour, for preserving.

Of the *Jaunhative*, Mr. Forsyth observes, it is a small plum (by some called White Prismordian), of a yellow colour, and mealy. Ripe, the end of *July*, or first of *August*. One tree, he says, is sufficient for a garden.

The *Early Damask*, commonly called the Morocco Plum, is middle sized, the flesh good. Ripens in *early August*.

The *Red Orleans*, is large; rich juice. Ripe *end of August*.

La Royal; a fine Plum, equal to the Green Gage; but a shy bearer; of a red colour. Ripens *late in September*.

Green Gage ; several varieties, and all good. Is of an exquisite taste ;—eats like a sweetmeat. Its colour and size distinguish it from any other. Ripens in *August* and *September*.

Drap d'Or is a good Plum—a plentiful bearer. Ripe late in *September*.

Saint Catherine Plum is one of the best—much used in confectionary ; also very good for the table, having a rich sweet juice ; and is a good bearer, *hanging* the longest of any upon the tree : sometimes six weeks in gathering. Ripens late in *September*.

The *Imperatrice*, or Empress Plum, has an agreeable flavor : Ripens the *middle of October*. This is one of the latest Plums—should not be gathered till it begins to shrivel ; it will then eat like a sweetmeat, and make a great addition to the table in the latter end of *October* and beginning of *November*.

On the *choice, planting, pruning, &c. of Plum-Trees*, see those treated of under *Apricots*, ante. If there are any *tap-roots*, cut them off ; and also the fine *bairy roots*, they being liable to become

mouldy and rot. If the roots, says Mr. Forsyth, are not spread near the surface of the ground, it will prevent the sun and air from penetrating to them; and the fruit, of course, will not have so fine a flavour.

Never cut the stems of young Plum-trees when first planted, but leave them till the buds begin to break; then they may be headed down to five or more eyes, always observing to leave an odd one for the leading shoot: observing to cut sloping towards the wall, and as *near to an eye as possible*.

Speaking of the distance between the trees, Mr. Forsyth says, Plum-trees should be planted according to the height of the wall, (when not a standard.) If the wall be ten feet high (the common height), they may be planted eight yards distance from tree to tree. If the wall be twelve feet high, or more, seven yards will suffice.

By training an upright shoot on the Plums, as for Pears, there will be gained fine kind shoots from the sides. Shorten the leading shoot, leaving it one to two feet long, according to its strength.

Plum-trees intended for *standards*, (as the climate of America prefers for all fruit-trees, not absolutely exotic), Mr. Forsyth recommends should, in England, be prepared as follows:—The year before they are meant to be *transplanted*, cut in the side shoots at different lengths, from one foot to three, according to the size of the trees; suffering them to grow rude all the summer, without railing-in nor cutting the side and foreright shoots. Sometimes during winter open the ground round their roots, and cut in the strong ones (for promoting the putting forth fine young fibres); then fill in the earth. In the following autumn, or during the winter (the sooner the better), transplant them out, as *standards*. He considers it to be of great consequence, in transplanting trees, especially if large, that they be placed in the same position, that is, having the same parts facing the same points of the compass as formerly. When a tree is cut down, three parts in four of the growth, appear on the north side. If, however, it is intended to plant them against a *wall*, never cut the side shoots, says Mr. Forsyth, but *only the roots*; by which the trees will bear fruit the first year after transplanting.

The ground in the borders and quarters should be well trenched, two spits deep, where fresh trees are to be planted ; to give the roots room to run in- to the fresh stirred ground.

Plum-trees, as *standards*, in an orchard to be kept for grass, should be in rows twenty yards from each other, says Mr. F.—If in the kitchen garden, as *standards*, he recommends that they be *dwarfs*. They may be trained up to have a *stem three feet* high, at the distance of seventeen yards.

Dwarf standards can be kept to the size you please. They look much handsomer than Espaliers, and produce a greater quantity of fruit.

In cold, frosty weather, cover Plums in the same manner as Apricots, as above. They are more tender than other sorts of stone fruit ; the flower-cup dropping sooner.

Do not thin the fruit too soon, lest it be pinched by the cold. The fruit is to be the size of a small marble, and well sheltered by the leaves, before it be thinned.

PEACHES,

Selected by Mr. Forsyth, for a small garden in England; with his observations on their culture, &c.

THE selection of peaches for a small garden, in England; consists of, the Early Avant; Small Mignonne; the Ann Peach; Royal George; Royal Kensington; Noblesse; Early Newington; Gal-lande; Early Purple; Chancellor; Nivette; the Catherine; the Late Newington.

The *Early Avant* has an agreeable flavor; ripens in *August*, early.

The *Small Mignonne*, is very red next the sun; the flesh has a rich vinous juice: It is ripe about the middle of *August*.

The Ann Peach, a fine early fruit: ripens the *middle* or end of *August*.

The *Royal George*, comes in soon after the *Ann*. The flower large and white: the fruit a dark red towards the sun, and full of a fine rich juice. Ripens the end of *August*.

The *Royal Kensington*, is one of the best peaches in England. Of a high red colour next the sun; yellowish next the wall: a good bearer, not apt to be blighted. The flesh is full of rich juice. Ripens near the *end of August* or early in *September*.

The *Noblesse*, large; of a bright red colour towards the sun: the flesh melting, and the juice very rich. A good bearer; ripens the *beginning of September*.

Early Newington, beautiful red towards the sun, full of a sugary juice: ripens beginning of *September*.

The *Gallande* or *Bellegarde*; is very large, a *deep purple* towards the sun; the flesh melting and full of a very rich juice. "This is a fine peach;" ripens the *middle of September*.

The *Early Purple*, This fruit is large; of a fine red colour, and full of rich vinous juice. Is an excellent peach: ripens about the middle of *August*.

The *Chancellor*, one of the best sort of peaches; of a fine red next the sun; the skin is thin, the flesh melting, the juice very rich. Ripens, beginning of *September*.

The *Nivette*, of a bright red next the sun; yellowish cast towards the wall; the flesh melting, and full of a rich juice. An excellent peach: ripens the middle of *September*:

The *Catherine*, a fine large peach: a round make, and beautifully red towards the sun. The flesh is melting, and full of rich juice. "The pulp is improved by lying three or four days before it is eaten" (says Mr. F.) Ripens about the *latter end of October*; but there are not many situations where it ripens well. Is a plentiful bearer.

The *Old Newington*, is of a fine red colour; has a high vinous tasted juice, and esteemed a good Pave (clingstoned.) Ripens, the *end of September*.

Planting, Pruning, Training, &c. Peaches in England.

Peaches require a lighter soil than Pears and Plums. A light mellow loam is best. In the choice of Peach Trees, as to health, &c. see of Apricots, &c. Procure them the end of *October* or early in *November*, as soon as the leaf begins to fall; and best that the ground be ready before hand. It is a great hurt to fruit trees when planted too deep. They should be kept up *above the level of the old ground*, at first,

when planted, water the roots to settle the mould, letting it remain some days till the water is absorbed: *then*, tread the mould, and fill the holes up to the top; observing the same rules as before given in case of dry weather, letting the fresh planted trees remain *unpruned* till the spring.

When the buds begin to shoot, if they be of maiden trees of one years growth, *head* them to five or more eyes, according to their strength: then rub on a little of the *composition*, where the top is cut off, cutting it sloping, as before said, and as near the *top* buds as may be; and also rub off the fore-right shoots. If the leading shoot be very strong, *pinch* off its top, the beginning of *June*. It prevents the shoots growing too long in the first and second years, by pinching their ends; but they should *not be topped*, when the tree sends out fine kind shoots, *till the spring following*, when they are to be pruned, according to the strength of the tree, and the quantity of wood it has made during the preceding summer, leaving the shoots from six to twelve inches long; for soon filling the lower part of the wall. It is too common to lay in the shoots at full length, taking off only the points of the branches; which in a few years is apt to leave the wall naked: but if

attention be paid to the training, especially for the first four years the walls could always be filled with fine bearing wood from top to bottom, and the trees could produce a deal more fruit, of a finer quality, than when they are run up in the former way; for those trees are so weak, sometimes, as not to have strength to bear good fruit. The third year, with summer attentions, they may be brought into a bearing state. If from very strong ground they grow very vigorously, the strong shoots should be pinched about *June*, for making them throw out side shoots; and if not laid in too thick, they will make fine bearing wood for the next year. If the strong shoots are suffered to grow their full length, they will be large and spongy; and produce neither fruit nor good wood for the following year. Weak shoots, altho' full of blossoms, never bear good fruit. *Suffering trees to be once weakened from abundance of fruit*, they never can recover. In such cases, pick off the fruit, that the tree may recover. [See pl. III. Fig. 2.]

When Peaches come into a bearing state, in general, there will be soon *two flower-buds*, and it will be soon what is called a *wood-bud*. Always cut at such double buds ; as from between them, come out the shoots that produce the fruit for next year. [See pl. III. fig. 2.]

NECTARINES.

THEY differ from the Peach in nothing more than their smooth rind, and the greater firmness of their flesh.

Select Nectarines for a small garden.

Fairchild's Early Nectarine ; the Elruge ; Scarlet ; Murry ; Newington ; Red Roman. The first four are clearstones ; the other two clingstones.

Nectarines are managed nearly as Peaches. The same rules of pruning and cutting out diseased parts. Thin the fruit when of a tolerable size.

PEARS.

Their Culture, Selection, &c. in England.

FOR a small garden in England, Mr. Forsyth recommends the following selection of *Pear-Trees* :

SUMMER PEARS : the Musk ; the Green Chissel ; Jargonelle ; Summer Bergamot ; Summer Bonchretien.

AUTUMN PEARS : Orange Bergamot ; Autumn Bergamot ; Gansel's Bergamot ; Brown Beurre ; Doyenne, or St. Michael ; Swan's Egg.

WINTER PEARS : Crasane ; Chaumontelle ; St. Germain ; Colmer ; D'Auch ; L'Esschasserie ; Winter Bonchretien ; Bergamot de Pasque.

The above, Mr. F. says, will furnish a regular succession of fruit.

Of the sorts and management of Pear-Trees, in England.

Observations on the Pears selected by Mr. Forsyth for a small garden, given in the preceding pages :

I. SUMMER PEARS. There are several *Musk* Pears, spoken of by Mr. Forsyth.—*The Little Musk*, or Supreme ; good only a few days. *The Orange Musk* ; apt to be dry. *The Musk Robine Pear*, or Queen's, or the Amber, is small, yel-

low when ripe ; has a *rich*, musky flavor ; a *great bearer* ; ripens the end of *August*. The *Musk Drone* ; a rich, musky taste : apt to be mealy, lest on the tree ; ripens early in *September*. The *Musk Orange* ; the skin green, the flesh melting ; ripens early *September*.

The *Green-Chissel*, or Hasting's Pear, is of a middle size ; always remains *green*, and is full of juice when ripe, which is early in *August*.

The *Fargonelle*, or Cuisse Madame. Lady's Thigh. It is somewhat like the Windsor :—the skin is smooth, of a pale green colour. A plentiful bearer ; but is apt to be mealy, if left standing to be ripe, which is middle of *August*.

The *Summer Bergamot*, or Hamden's Bergamot, has a melting flesh, and a juice highly perfumed. Ripens the end of *September*.

The *Summer Bonchretien*, very full of juice, of a rich perfumed flavor. Ripens the middle of *September*.

II. AUTUMN PEARS. The *Orange Bergamot*.

Autumn Bergamot: smaller than the Summer Bergamot: the flesh is melting, the juice highly perfumed. A great bearer. Ripens early in *October*.

Gansell's Bergamot.

Brown Beurre: a reddish brown next the sun, yellowish on the other side; the flesh melting, full of rich juice. Ripens in *October*. An excellent Pear.

Doyenne, or St. Michael.

Swan's Egg: middle size, egg-shape; green; flesh melting, full of pleasant, musky juice. Comes in eating in *November*. Bears well.

III. WINTER PEARS. The *Crasane*: the flesh extremely tender and buttery, full of rich sugared juice. The very best of the season: comes into eating late in *December*.

The *Chaumontelle* (wilding of *Chaumontelle*) is melting; the juice very rich: is in eating in *January*.

The *St. Germain* is a fine fruit and keeps long; the flesh is melting, and very full of juice;

which, in a dry season is very sweet : it is in eating from *December* till *February*.—NOTE. In *dry seasons*, fruit should not be suffered to *sweat* so long in the heaps, as directed in treating of *gathering* and laying up fruit. Perhaps two weeks will be long enough, says Mr. Forsyth.

The *Colmar Pear* is very tender ; the juice greatly sugared. Is in eating about the first of *January*. The *D'Auch Pear* much resembles the *Colmar* ; but is fuller towards the stalk ; and is in eating from *Christmas* to *April* ; “ and without exception is the *best of all the winter Pears*.”—*L'Esschaserie* has flesh melting and buttery ; the juice sugary. In eating early in *January*. The *Winter Bonchretien Pear* is very large ; the flesh tender and breaking, and is very full of a rich sugared juice. It is in eating from the end of *March* till *June*.

The *Bergamot de Pasque*, goes also by the names of, the *Terling*, the *Amoselle*, the *Paddington* and the *Tarquin*. It is a fine handsome fruit—green when gathered—yellowish when ripe. Comes into eating in *April*, continues till *June*—and makes a handsome appearance at table.

Mr. Forsyth advises, that instead of choosing young Pear-Trees to plant out, the oldest in the nursery should be looked for and preferred, with strong stems: to take them up carefully with as much root as possible, and carefully plant them, after cutting the roots a little, spreading them as horizontally as can be. Then fill up all round the roots, with light, dry mould, forcing it in about those which lie hollow with a pointed stick; filling the whole up to the top, without treading the mould till the hole is first filled with as much water as it will contain, leaving it a day or two, until the ground has absorbed the water: then throw on some fresh, dry mould, and tread it as hard as it can be; fill the hole up again with mould to within an inch of the top, and give it a second watering, leaving the mould three inches higher than the border, to settle of itself, and receive rain that falls; for at least a month. When the mould is become quite dry, it may be trod a second time; then make a large bason round the tree, and give it another watering; then mulch the top over with rotten leaves or dung, observing to water the trees once a week in dry weather, and sprinkle the *tops* frequently with a pot or hand-engine, to keep the wood from shrivelling till the trees have taken fresh root.

In planting trees against a wall, let the stem stand sloping towards it ; its lower part being no more nor less than *six inches* from the *bottom* of the wall, that the stem may have room to grow ; and let the stem not lean, but be perfectly upright. When standards are planted a foot or two from the wall, it gives them a disagreeable appearance : *six inches*, he says, will be full enough.

When the buds begin to break well, head the trees to three or four eyes, for filling the wall with fine wood. Never head them afterwards, except the leading shoot, to fill the wall ; leaving the foreright shoots to be pruned.--Mr. F. says, he had trees giving forty Pears the second year ; while some of the same kind bore only eleven Pears the fourteenth year after planting, with the common method of pruning.

If any of the trees get stunted after a number of years, nothing more, he says, is to be done but to *head them*, as he directs, which will restore them into fresh vigour and fruitfulness.

The method, he says, of pruning *Pear-trees* is very different from that practised for *Apple-trees*,

in general. [See pl. VII. Letters C. and D.] Mr. F. supposes it would be between twelve and fourteen years before he could obtain any fruit from *young Pear-trees*. But he makes a comparative *experiment* in pruning or heading Pear-trees. He cut down four old and decayed Pear-trees, of different kinds, near where they had formerly been grafted : this was performed the 15th May. Finding that they put forth fine shoots, he headed down four more on the 20th of June, of the same year, (by which time the former had shoots a foot long), which did equally well, and bore some fruit in the following year. One of the first four headed down, was a St. Germain, which produced nineteen fine large well-flavored Pears next year, [see Letter B. pl. VII.] and in the third bore more fruit than in its former state it ever did, when it was four times the size. He left seven trees upon an east wall, treated according to the *common method of pruning*, which bore as follows :

The number of Pears produced upon each of seven trees that had been *treated according to the common method of pruning*, viz.

1. Epine d'Hyver produced eighty-six pears, and the tree spread fifteen yards.

2. A Crasane produced one hundred Pears, and the tree spread fourteen yards.

3. Another Crasane produced sixteen Pears, and the tree spread ten yards.

4. A Virgouleuse produced one hundred and fifty Pears, and the tree spread nine yards.

5. A Colmar produced one hundred and fifty Pears, and the tree spread nine yards.

6. Another Colmar produced seventy-nine Pears, and the tree spread ten yards.

7. A L'Eschasserie produced sixty Pears.*

Compared with the above,—seven trees, *headed down and pruned* according to his, Mr. Forsyth's method, leaving the foreright shoots in summer, they bore as follows, in the fourth year after heading:

1. A Louisbonne bore four hundred and sixty-three Pears, and the tree spread nine yards.

* Total 641.

2. Another Louisbonne bore three hundred and ninety-one Pears, and spread eight yards.

3. A Colmar bore two hundred and thirteen Pears, and spread six yards.

4. A Brown Beurre bore five hundred and three Pears.

5. Another Brown Beurre bore five hundred and fifty Pears.

6. A Crasane bore five hundred and twenty Pears.

7. A Virgouleuse bore five hundred and eighty Pears.†

The branches of the four last trees spread nearly in the same proportion as the first three.

A young Beurre the second year after heading bore 230 Pears, and a St. Germain 400.

† Total 3220. That is 5 to 1.

All the above trees stood upon the same aspect and the same wall, and the fruit was numbered in the same year. The trees pruned according to the old practice covered, at least, one third more wall than the others.

By the above statement, the *trees headed down* bore upwards of five times the quantity of fruit that the others did ; and they keep increasing, he says, in proportion to the progress of the trees.

Add to this vast encouragement and superiority of his pruning, that on the 20th June, Mr. Forsyth *headed* several standards that were nearly destroyed by the *canker* ; some of them were so loaded with fruit the following year, that he was obliged to prop the branches. In the fourth year after these standards were headed down, one of them bore 2840 Pears. On the same border were three standards, two whereof were St. Germain's ; the old tree was of the same kind. One of these trees, twenty years old, had five hundred Pears on it, a great crop for its size : so that there were on the old tree, which had been headed down not quite four years, 2340 Pears more than on the tree of twenty year's growth.

Mr. Forsyth gives a curious account of the recovering an old decayed Pear-tree, illustrated with a plate (VIII.)—Restored from an inch and half of bark, which now covers a wall sixteen feet high. In 1796, it bore 450 fine large Pears, and continues flourishing. The plate, however, is so badly drawn as to be scarcely worth copying. In referring to the plate, he refers to “fruit-buds for the present year—others forming for next year; and old footstalks that bore the fruit last year;” but they are scarcely intelligible.

The following Mr. Forsyth gives as his *method in training trees that are cut near to the place where they were grafted*. Every year, in March, he shortens the *leading shoot*, to a foot or eighteen inches, according to its strength; this shoot, if the tree be strong, will grow from five to seven feet in one season; and if left to nature would run up without throwing out side shoots. The reason for thus shortening the leading shoot, is to make it throw out *side shoots*; and if done close to a bud, it frequently will cover the cut in one season, leaving only a cicatrix, as at f. f. f. in pl. VIII. which shews every year's growth and cicatrix. When the shoots are very strong, he cuts the leading shoot twice in

one season ; by which he gets two sets of side shoots in one year ; which enables him to cover the wall the sooner. The *first cutting* is performed any time during the *spring*, and the second the *middle of June*.

He directs, when you prune the trees, and cut the foreright shoots, which is to be in *February* or *March*, always cut close to an eye or bud, observing where there are the greatest number of leaves at the *lower bud*, and cut at them ; for at the *foot stalk* of every one of these will be produced a flower bud. The same, he adds, will hold good in cutting the superfluous shoots on *standard Pears*. There will be in some sorts of Pears, from five to nine Pears in a cluster. This cutting is to be not later than March or first of April, because of the leading shoot beginning to grow : the next *topping*, when the leading shoot grows quick enough to admit of it, will be the middle of *June* ; and the length of the shoots are to be according to their strength, having from three eyes or buds, to six on a side.

The *cankery* part, he says, beginning to affect the new bark, he cut off all the canker at the bottom last year, and plastered the place with cow-

dung, mixed with *wood ashes* and powder of *burnt bones*, put into as much *urine* and *soapsuds* as would make it the consistence of thick *paint*. It was laid on with a painter's brush. After being applied three hours, it was patted gently down with the hand, close to the tree: by which the air-bubbles that may hap to be under the composition, and make it adhere to the tree, preventing its being washed off by rain, are got rid of.

In *August*, early, the foreright shoots are shortened to about four inches long; by this time the shoot will have made its full growth for the season, and will produce fine strong eyes for the following year.

The tree above mentioned had a decayed, rotten root, the dead part of which he cut all away, till he came to the sound wood. Whenever the trunk is hollow, he directs that it be followed under ground till all the decayed parts and rotten roots are cut out, otherwise the tree will be lost.

If, says Mr. Forsyth, the above be followed, more Pears will be got in three or four years, than can be in twenty-five years *by planting young trees*, and pruning and managing them in the common way.

But it may happen that the Pears become stunted after cold blighting winds, and frosty nights (as sometimes seen in June and July*). In this case, Mr, Forsyth recommends a new and bold method of operation, when the weather becomes milder, or begins to be so :

He says, take a sharp pen-knife, and with its point cut through the rind of the Pear, from the footstalk to the eye, as if it were a bark-bound tree, cutting as little into the flesh of the tree as possible. Beat up fresh cow-dung with wood ashes, and rub in a little of this composition with the fore finger, where the cut is made.

The *distance* he gives Pear-trees against walls, and breadth of borders, are twelve yards : but the distances vary too greatly to enter into detail. Borders should be 10 to 20 feet wide. But here is much extravagance.

* No such cold weather ever happens in the United States, at least not beyond the 41°. So far from it, it is thought strange there should be frost in May.

VINES.

MR. FORSYTH selects for a small garden in England, the following Vines :—The *White Muscadine*; *White Sweet Water*; *Black Sweet Water*; *large Black Cluster*; *small Black Cluster*; the *Miller Grape*. St. Peters, and the *Black Hamburgh*, may do very well in favorable seasons.

The *White Muscadine*, above selected, resembles the *Royal Muscadine*, but the berries are smaller. It is the best grape for a common wall, and a great bearer. Also called the *Common*, and the *Chas-selas*.

The *White Sweet Water*. The berry large, a white colour; very agreeable juice. Esteemed an excellent grape. Ripens in *September*.

The *Black Sweet Water*. Small berry, sweet; but apt to crack. Not much in repute. Ripens in *September*.

The *large Black Cluster*. A very rough, harsh taste. Speechlay says it is the grape of the *Oporto* wine.

The *small Black Cluster*. A very pleasant fruit.

The *St. Peter's Grape*. Large oval berries; deep black; bunches large: the flesh juicy. Ripens late.

The *Black Hamburgh*. Bunches large—large berries—pleasant sweet juice, vinous. Ripens in November.

Cuttings of Vines, take from shoots the best ripened, with the shortest joints—always with one or two joints of the last year's wood: cutting it as near a joint of the old wood as possible.

Choose cuttings *after a warm, dry season*. Each cutting to have two inches of the old wood, with one eye of the new.

Training and Pruning Vines.

In 1789, says Mr. Forsyth, I let two strong branches grow to full length, without topping them in the summer. In 1790, he trained them in a serpentine form, [pl. X.] leaving about 30 eyes on each shoot, which produced 120 fine bunches of grapes, weighing from one pound to a pound and

a quarter each. All who saw them said the large ones were as fine as forced grapes ; while the small ones produced from branches of the same Vine, trained and pruned in the old way, were bad natural grapes, and not above twice the size of large currants.

To confirm this experiment, he next year trained five plants in the same way, allowing the shoots intended for bearing wood to run to their full length in summer, training wherever there was a vacancy between the old trees ; where there was none, he run them along the top of the wall, without topping them. In winter he trained them in a serpentine manner, so as to fill the wall as regularly as possible : they were as productive as those in the former years.

After a three year's trial, he thought himself warranted to follow the same practice with the whole ; and in 1793, he sent for the king's use 378 baskets of grapes ; each weighing three pounds, without planting a single Vine more than were the preceding year, when he could send only 56 baskets of the same weight. The above proves the great advantage of the *serpentine* method of training Vines.

It must be observed, the shoots should be brought as near as possible *from the bottom* of the Vines, that the wall may be well covered. When the walls are high, and the shoots from the serpentine branches strong, they may sometimes be suffered to remain. If the walls are low, and the serpentine branches give weak shoots, they are to be cut in the autumnal pruning, and the strongest of the young wood is trained up in their room, as directed in the explanation of pl. X.

The wood, *in pruning and training Vines*, must be *strong*, or the Vines will produce small bunches. If that be the case, cut them down to two or three eyes, in order to have strong wood for the next year. Vines bear their fruit on the wood that was produced the preceding year. The deal of old naked wood that occurs, and small weak shoots at the extremities, always cut down as near to the ground as possible. There then will be no fruit for that year. Or cut every other shoot, leaving the old ones to produce some small grapes. The next year there will be plenty of fine wood, if care has been taken to nail-in the strongest shoots, and pick off the side shoots produced from the eyes; pinching off with finger and thumb, or with a sharp pen-knife cutting

them out close to the bud or eye ; but *never twist them* : by twisting them, the bud will be hurt that produces the grapes next year ; always cutting as *near to a bud* as possible, and laying in the wood very thin in summer ; so it will grow very strong. Pick of all side shoots as often as there is nailing to the wall, which will be several times in the summer months.

Suffer not the Vines to run together in a cluster, and to mat, which will ruin their bearing the next season. Top the shoots trained serpentine-like, soon as the grapes are as big as very small green peas, a joint or two above the fruit ; but *never top the leading shoot*, nor which is intended to give fruit next year.

In the *second year's pruning*, observe not to prune Vines till the beginning of *February*, unless in case of uncommon forwardness in the season. It is common with some, to begin pruning *soon after the fall of the leaf*, before the *wood becomes hard* : but if a frost sets in *before the wood is hard*, especially after wet summers and autumns, it will be much injured. Mr. F. has seen Vines almost killed after *autumnal* pruning. When the Vine leaves begin to fall, take

a soft broom and sweep them off, *upwards*, in a gentle manner, which helps to harden the wood.

In beginning to prune in *February*, make choice of the strongest and longest shoots ; leaving them as *long as the eyes are found good and plump*, and the wood *round* ; but never leave them when they become *flat* ; for in that case they seldom bear fruit ; and if they do, it will be very small. Mr. F. never lays in any that has less than fifteen, and from that to thirty *good eyes*, which will produce two bunches from every good eye. He has had seventy bunches of grapes from one shoot.

The shoots that bore fruit in the preceding year should be *cut out next year* ; except when the wall is to be filled, and the shoots are very strong. A plenty of fine, healthy young wood is always to be had, if there be care in pruning in the winter ; therefore, he says, never leave *any but fine strong wood*, always *cutting at the second, third or fourth eye*, rubbing off the lowest bud, and that which comes out at the joint between the new and last year's wood. Thus as much fruit is got from these short shoots, as would be by the common pruning.

Always leave two or three of the strongest shoots for next year's bearing wood, and never top them : and, if there is a want of room to train them, they may be led over the tops of the other trees, or run them behind the standards ; which will have a beautiful appearance when the fruit is ripe.

The *composition* presented by Mr. Forsyth to the world, through the bounty of the government and Parliament of Great-Britain, is always to be applied as soon as possible after pruning. The *Vine* is very porous, and soon imbibes wet and moisture, which soon bring it to decay.

If a *Vine*, from being cut late, should *bleed*, the powder is to be applied, and repeated till the bleeding is stopped.

To try the effect of the *powder* in stopping the bleeding of Grape-Vines, Mr. F. cut two strong Vine branches in *June*, and three more in *July*, in very hot weather. The sap rose so strong that it worked out at the top in a froth : on *applying the powder*, it was *in a short time entirely stopped*.

Watering Vines.

When the grapes are *set* and begin to *swell*, water them with the barrow-engine ; sprinkling all over the *leaves* and *fruit*, pressing the fore finger over the top of the pipe, so that the water can be thrown as fine as small rain.

Insects on Grapes.

Soon as the large fly, &c. appears, have bottles, a good number, about half full with some *sweet liquor*, where the insects will be drowned. Hang the bottles all over the Vines, and some at the bottom of the walls. Hang them up early, as the blue fly comes much earlier than the wasp, and is not less destructive.

Against birds, nets or bunting are to be thrown over the grapes.

It is a bad practice to take off the *leaves* from Vines soon after the fruit is set ; which prevents the fruit from swelling, and it becomes *hard* and small, apt to crack.

Grapes are kept wrapped in soft paper, and covered, layer and layer, with bran well dried : but short

cut, sound, dry straw must be better, as the dusting of meal on the bran will produce mites, &c.—The grapes bagged, and the jar or pot being filled, layer and layer with them and the *cut-straw*, they are then closely secured in a dry room, nor cold nor hot.

FIGS.

FIGS have been cultivated in England ever since the year 1562. Mr. Forsyth gives an account of fifteen sorts the best worth cultivating in England. They are, he says, raised from *suckers*, *layers*, or *cuttings*; which will thrive in almost any soil, but do not like a wet bottom: they generally, he adds, produce more fruit on a strong loamy soil than on a dry one. *Layers* or *cuttings* are preferable to suckers.

Pruning and Culture of Figs.

They should never, says Mr. Forsyth, be pruned in *autumn* or during the *winter*: his best time is the latter end of *April* or beginning of *May*; by which time will be seen what shoots have been killed by the frost in winter. The end of those branches more particularly will be hurt where the *wood* has

not ripened well in *autumn* : they should be cut *into the sound wood*, and as near to an eye as possible. When the branches have been suffered to run up, leaving *the bottom quite naked*, there should be cut out every other branch as near to the ground as can be ; which will furnish the wall with fine young wood ; observing to stop the ends of the shoots in the beginning of *June* ; this will cause them to throw out *side shoots* which will bear fruit the next summer. By that time there will be plenty of *fine wood* : then may be cut down the rest of the old branches left the preceding year, observing to prune them about the same time the pruning was the last year : remembering always to *pinch off* the *ends* of the strongest shoots, except the leading ones, at the *top bud*.

When the pruning is *in the spring*, never shorten *the shoots*, as the fruit is produced near the *tops*. There will, he says, be many fine short side and foreright shoots, which should never be cut off but when decayed. These shoots, he thinks, will ripen much better than the long strong ones, and not be so liable to be killed by frost in winter. By following this method, Mr. F. says, the trees will be covered with fruit from top to bottom of the walls, instead

of a few fruit only at the top, as when the common method of pruning is practised.

When the Figs are the size of small nutmegs, pinch off the point of the top bud with the finger and thumb, or cut it with a sharp pen-knife ; always remembering to use the *powder* wherever is the cut or pinch, to stop the *oozing of the milk* ; which, if suffered, would exhaust and injure the trees.

Do not lay in the branches too thick, or near together ; their distance should be twelve to eighteen inches from each other.

In the beginning of winter *cover* the trees before the frost sets in, or the *ends* of the shoots will be hurt by the first sharp frosts, before the wood is ripened and *hardened*, which will render it necessary to cut them as before. When Fig-trees are very much injured in hard winters, the best way is to cut as *near the ground* as possible ; and the second year they may be got into a fine bearing state, if managed as above directed.

Covering Fig-Trees.

Mr. Forsyth covered with bentings,* or short grass from the pleasure grounds ; which he finds answers the purpose very well. Figs, he adds, may also be sheltered in winter, by wrapping hay or straw bands *round the branches* of the trees ; then *open the ground*, lay in the *branches* of the trees, and cover them over with mould about nine inches deep, *leaving the ends of the shoots* about three inches out of the ground, and covering the ground over with some rotten leaves or old tan, &c. to keep out the frost. The roots also may be so covered.

Do not uncover the Figs too soon in the spring ; and it should be *partially*, for fear of frosts and cutting winds in *April* and *May* ; which would kill the young *fruit*, as it makes its appearance in the spring.

The *branches* laid into the ground should be taken up in *April*, taking off the hay and straw bands,

* Bentings, or bent-grass ? Under Grapes, p. 129, he says, cover the trees with “ nets or *bunting* (a kind of stuff which ship’s colours are made of).” But here, (his p. 136), bentings seem to be the bent-grass ; for he says, “ bentings or short grafs.”

and then nail them to the wall. Stick in among the branches some fern leaves, or other *light covering*, to protect them from drying winds and frosts, till the fruit is of the size of a large walnut, or rather till the leaves are large enough to protect the fruit.

The Italians, *to forward the ripening* of Figs, drop a little sweet oil from a quill into the dye of the fruit. But take care not to hurt the skin and make the Fig burst. This makes the difference of full *two weeks* in the ripening.

Soon as the leaves *begin* to fall, brush them off with a broom, but not till they come off *easily*, lest the trees be made to bleed at the footstalks. In the same moment clean the *stalks* of all the stalks of *small late fruit*;—which, if suffered to remain in the winter, will rot and injure the tree, so as to prevent it from bearing the next summer.

If milk is seen *oozing* from the footstalks, apply some of the *composition*; which will stop it and heal the injured part: and by doing this, ripening and *hardening the wood* before winter frosts set in will be assisted. See before, p. 38, his powder applied to Vines.

Plant Fig-trees 20 to 24 feet apart ; and train *horizontally*, which renders them much more fruitful than if trained *upright*, which makes them run up in long, naked wood.

Leave *spurs* or short shoots *all over* the branches ; and when the buds *begin* to swell, all the *short shoots* should be pinched as above.

The branches of *standard* Fig-trees are liable to be killed in winters ; they therefore should be laid *in the ground*, *wrapping* them up in hay or straw bands, as directed for wall-trees. It sometimes will be impracticable to lay down the *middle* branches : then let them be well covered with hay or straw bands, and the *outside* laid down regularly round the tree, and avoiding to hurt them with the spade : then *mulch* them with rotten leaves, &c.

After hard winters it has been found necessary to cut Fig-trees down *very near to the ground*, and apply the *composition* : in two years the new wood has covered over the old stump, and the branches filled up the space, bearing a plenty of fine fruit.

In a plentiful year, what is not used at table, may be dried for winter use.

QUINCES.

THE best sort for the kitchen garden is the *Portugal*, the best for baking or stewing. It is of a fine purple colour when dressed, and much better for marmalade than any other sort. These also mix well with apples in pies and puddings; adding a quick pleasant flavor.

They are easily raised by layers or cuttings taken from the tree in *March*. Plant in a *shady place*, in rows a foot apart, and three inches, plant to plant in the rows. *Mulch* them with rotten leaves or rotten dung, for keeping the ground moist about them. Water them frequently in hot weather. About Michaelmass the well-rooted may be planted out; and the rest let remain over to another year.—They also may be propagated by *budding* or *grafting*; and those trees will bear, Mr. F. says, sooner, and be more fruitful than those raised by any other method.

Prune Quince-trees much like Apple-trees, cutting out all the diseased, old, and dead wood, and the *cross branches* in the middle of the tree. In general, old trees are much hurt by injudicious pruning: in that case, *head them down*, cut out all the

cankery part, and all the *diseased* and dead wood where the tree is hollow, or where large branches have been cut or broken off; applying always the composition as for Apple-trees.

Quince-trees are apt to have rough bark, and be *bark-bound*. Shave off the *rough* bark with a draw-knife; and *scarify* them when bark-bound: then brush them over with the *composition*, as hereafter.

Quinces ought to be planted some distance from apples and Pears, as bees and the wind might mix the farina, and occasion the apples and pears to degenerate.

GOOSEBERRIES.

THE sorts common in England, Mr. Forsyth says, are—

Green Gascoin,	Hairy & Smooth Red,
Smooth Green,	Large Smooth Yellow,
Early Black,	Large Rough Yellow,
Small Early Red.	Common Large White,
Large Smooth Dutch Yellow,	Champaigne.

They are raised from *cuttings*, or from *seed* ; some raise them from suckers : but these last are raised in a bad way ; as the bushes are more liable to throw out suckers from them than in either of the other ways.

Plant *cuttings*, he says, about Michaelmass ; always cutting them from the strongest and cleanest shoots. The length of cuttings to be six to eight inches, planting them on an east or north border, one foot from row to row, leaving them about three inches above ground : at this distance the hoe may be admitted, for cleaning them from weeds and stirring the soil. Water frequently in dry weather during the spring.

Market gardeners near London plant them in rows, 8 or 10 feet from row to row, and six feet, plant to plant in the rows. In which case, Mr. F. advises pruning them in the beginning of *October* ; and the ground between planted with colworts or beans, for a spring crop.

After this time (or before) lay a coat of rotten dung on : then dig and plant early potatoes ; but not so near the Gooseberries as to hurt them.

The roots of Gooseberries are to be kept clear to admit *sun* and *air*. In small gardens, plant them in quarters by themselves ; six feet between the rows, and four feet, plant to plant ; or plant them round the edges of the quarters, three feet from the path ; and then the ground will be clear for cropping.

Gooseberries love a *rich soil* ; and should therefore be *dunged every year*, or at least a *good coat* once in two years.

Never plant them, he says, under the shade of *other trees* ; which would injure the flavour of the fruit.

Pruning Gooseberries.

It is a bad practice to let Gooseberry-bushes branch out with great naked stems. When they are found in this state, *cut them down* near to the ground in the winter pruning. They then will throw out fine strong healthy shoots, that will give fruit the second year. In general, they bare their fruit on the second year's wood.

In summer keep the *middle* of the bush *clear*, to admit a free air ; leaving the finest and strongest shoots from six to ten inches distant from each other ; which will help to ripen and harden the wood. It is, says Mr. F. a practice with some to *shorten* the shoots in the autumn or winter pruning ; this, he adds, should always be near to a *wood-bud* ; which is known by its being *single*, whereas *fruit-buds* are in *clusters*. The shoots are shortened to eight or ten inches, as they are strong. Some leave them at full length three or four years, thinning out those that are superfluous. Always leave a number to be trained up between the full length shoots, to succeed them when they are tired of bearing : then cut the old ones down to the young that are to succeed them. Thus the bushes are always in a constant state of bearing.

The branches cut in the first year, in the second will throw out short dugs, or spurs which produce the fruit ; and these should by no means be cut off, unless the branches are in a sickly state, and require to be cut close down when the bushes are overloaded with fruit. It will then be necessary to cut out a good deal of the old wood, to assist nature to recover herself after being forced in producing so great a quantity of fruit.

The Gooseberry supplies the table amply till the wall-fruit comes in. Great additions to them are of late made by *raising them from seed*.

By mixing up a *rich soil* to plant those in that have been raised *from seed*, and by *watering, shading* and *thinning* the fruit, they have grown *much larger* than any ever before seen in England.

The catalogues of Gooseberries are brought to contain between four and five hundred sorts or varieties. Mr. Forsyth asked Messrs. M'Niven, nurserymen at Manchester, how many *good* and *distinct* sorts (some hardly being distinguishable) they could send him out of their numerous catalogue: the answer was, "They could send about eighteen or twenty sorts, which they could answer for being *good* and *distinct*."—Mr. Forsyth accordingly received, on his order, all the sorts that they could warrant good, which turned out to his satisfaction.

Great attention ought to be paid to the cultivation of the *early* and *late* sorts before all others, and he wishes attention be paid to the times of ripening.

He disapproves of clipping the tops of Gooseberry-bushes with garden-shears, which exceedingly injures the bushes and the fruit.

In the spring and summer, grub up all the *suckers* from the roots of the bushes ; leaving their stems clear and unincumbered.

To have the fruit very late, plant on *north walls* and palings between the other trees ; and they may be removed when the trees begin to meet. If *laid in thin*, they will bear very fine and handsome fruit. Plant the finest *late* sorts. By this method the table will be supplied much longer than by the common practice of planting in *quarters*.

Immediately after pruning, Mr. F. always applies the *composition* to the ends of the shoots and cuttings ; and he finds it of great use in preventing the *exhalation* of the sap, and preserving the cuttings till they take root.

A small green caterpillar frequently devours the leaves and fruit of Gooseberry-bushes. Watch their *early* coming, and destroy them before they

get ahead, or they will destroy all the leaves, and the fruit will be worthless. Their first appearances are *under* and at the *edges* of the leaves.

To kill the green caterpillar, lay *sifted quick-lime* under the bushes : but at first let none touch the branches or leaves ; then *shake* each bush *suddenly* and *smartly*. The caterpillars then fall into the lime. If the bush be not very *suddenly* shook, with a spring, the insects being a little disturbed will cling close to the leaves, hardly to be shaken off. After this is done, sift some of the lime *over and on* the bushes, which will drive down those that may be lodged on the branches. Next day sweep up the caterpillars, and wash the bushes with clear lime-water, mixed with urine. This will destroy *Aphides* as well as caterpillars.

CURRANTS.

THE sorts most commonly cultivated in England are, the *Red* and *White Dutch Currants*, and the *Common Black* and *American Black Currants*. Also the following sorts are cultivated by the nurserymen about London and other parts of England :

Common red,	Longbunched red,
Champaign large pale & red,	Striped-leav'd red,
Fine new white Dutch,	White Crystal,
Large pale and red Dutch.	

The Currant is the most useful of all the small fruit, either for the table and kitchen, or for preserving, making wine, &c. and continues longer in succession than any other.

He further says, with proper attention, Currants will continue in use from June to November. Black Currants are very much esteemed by some; yet they are seldom sent to the table, but are very useful for making jelly, for sore throats, colds, &c. In Ireland, he says, *Black Currants* are steeped in *whiskey*, of which they make punch, and recommend it as a medicine for coughs and colds. He once had two gallons of it sent by a friend for that purpose: some of it was taken in a glass of warm water by a person much afflicted with a severe *cough*, and thought to be *in a decline*, which effected a perfect *cure* in three or four nights. The Currants for this purpose should be bruised and put in a jar, and the whisky poured over them. It stands a fortnight, cover it close down; then it is

strained through a fine cloth or sieve, and put it into bottles or casks for use. Currants, he adds, may be used in this manner with brandy, gin, or other spirits: and they may be preserved as cherries, and sent up to table.

Propagation of Currants.

They may be raised from *seed*, *layers*, &c. When the trees are cut low, lay down some of the branches in winter or spring, when the ground is dug in the *quarters* or *rows*, which ought to be annually. In the next autumn, these layers will have made fine *roots*; then they may be planted out wherever wished to stand, when in the following summer they will give fine fruit.

Currants may also be propagated by *cuttings*; choosing out the strongest and straightest shoots.

Under the bushes, *covered* for late fruit, there will always be found a plenty of self-sown plants; which it is adviseable to plant out by themselves. When wine is made of Currants, save and dry the seed—then in autumn or early in the spring *sow the seeds* on fine *light earth*; when there probably will be some fine varieties. Do not propagate

them from suckers : they never grow handsome, and throw out many suckers.

Instead of some bad Currants retained in the gardens in England, Mr. Forsyth recommends the rooting them out, and plant in their room the *Large Red and White Dutch*, the *Long Bunched Red*, and *Champaigne Large Pale Red*. They may be planted out in the same manner as Gooseberries, in *quarters*, or single rows round the edges of quarters.

A few, particularly, plant against a *south* or a *west* wall or paling, which will give fruit much earlier than in *quarters*, &c.—Also to plant some between other fruit-trees on *north walls* or palings, for *later* crops : these may be *covered* with double nets, to preserve them from birds ; tucking in a few fern branches between the two nets, for preventing the heat of the *sun* and drying *winds* from shrivelling the fruit. In quarters, they should be covered with mats for the same purpose ; at the same time permitting the leaves to remain on the bushes to shade the fruit and make it keep the longer.

Pruning Currant-Bushes.

It is nearly similar to that of Gooseberries. It may be begun in *November*, and continue till *March*.

Never leave Currants too *thick of wood*; and much depends on their management in summer, that they may have strong and fine wood for the next season. If they have been neglected for years, and suffered to run up to long naked wood, they are to be cut down near the ground; they then will set forth fine strongshoots. In such case, Mr. Forsyth recommends *heading down* every other tree, and cutting the others partially, by taking out every other branch as near as can be to the ground, unless they are *trained up with single stems*, in which case, he says, cut them as near as possible to where the branches begin to break out and form the head.

In the winter pruning preserve the strongest and finest shoots, leaving them nine to eighteen inches long, according to their strength, and from eight to ten inches apart, and regular from top to bottom of the trees; cutting out the dead and weak shoots.—Particular attention is to be paid in *summer* to keep open the *middle* of the bush, to admit *sun* and *air*; preserving the finest and strongest shoots, nearest

the *stem*. Suffer not, for the sake of a fine round head, that it run too high, however comely, because the winds are apt to break them if not well supported by stakes. The shoots should run not to more than six inches long. He prefers *dwarfs*, three to four feet high. Stock up all *suckers* at the roots of the trees, and *keep them very clean*.—*Suckers* would prevent the *sun* and *air* from the *roots*, and weaken the trees.

BARBERRIES.

MR. FORSYTH recommends Barberries in all shrubberies. They attract and harbour singing birds. The *sorts* are, the *Red Barberry without stems*: the *White Barberry*: the *Black Sweet*, the tenderest of them—plant in a warm situation: the *Common Red with stones*, planted for its beautiful red berries.

They are propagated from their suckers and layers, and require the like pruning with other flowering shrubs. They look well planted in clumps.

When they are to be increased, encourage the finest and cleanest shoots in *summer*, by trimming all the side branches off thin ; and when in winter the shrubberies are dressed, lay down the strong shoots, which will take root, and be fit to transplant in autumn following. When designed for use, train them up as standards and half standards, and they will grow from six to twelve feet high. In summer trim off all the straggling and superfluous shoots, so as to make handsome heads.

Barberries may also be raised from seeds ; but suckers and layers are best for preserving the sorts distinct.

They are used as pickles, in garnishing dishes, and as a preserve. They are excellent ; to many purposes ; and in making a cooling drink in fevers, they are scarcely equalled ; and in punch are thought by some to rival lemons.

RASPBERRIES.

THE sorts propagated in England, according to Mr. Forsyth, are—

Early white, Large red Antwerp.
 Double-bearing white, Large white Antwerp,
 Large common white, Smooth cane double-bearing,
 Large red, Woodward's new Raspberry.

Propagating, Planting and Pruning Raspberries.

They are, says Mr. Forsyth, raised from *suckers* and *layers*. They should be planted in a piece of ground by themselves, and (except the early white) at the distance of six feet from row to row, and four feet in the rows.

First *trench* and *dung* the ground before the Raspberries are planted : choose the strongest and finest *plants* that come *from the sides of the stools*, where they have been *standing for some years* ; or encourage the strongest plants that come out betwixt the rows after digging, which should be done annually. In digging, the roots will frequently happen to be cut with the spade, which will occasion many small plants to come up ; of which *select* the *strongest* and *finest*, and then hoe up all the rest. But he preferred laying down some of the strongest outside shoots in *March* ; as by the next autumn they will make fine roots, and may be planted out where intended to remain, These will be less liable to throw out *suckers* than those produced from suckers.

Plant out fresh pieces of Raspberries in *moist weather*, as the roots are very delicate, and subject to be hurt if exposed to a *dry air*. If, however, they are planted in *dry weather*, be sure to moisten the roots with water, and cover them with wet litter or leaves, during the time of planting.

In planting, *open a trench* with the spade along the line where the suckers or layers are to be planted. *Cut off the small fibrous roots* with a knife, leaving only the stronger roots. Put them into the trench, and cover them with earth: then water them well, and throw the rest of the earth over them, to remain till the planting is finished; then where you first began to plant, begin and tread the ground with your foot as hard as you can along each of the trenches, and in the same direction as you planted: then with a spade level all the ground smooth, and run it over with a rake, taking off any stones and rubbish that may be left on the surface.

In dry weather, water the plants two or three times a week till they take root. The *Antwerp* and other strong growers should be staked with *stout stakes*: then run two small rails at top, to tie the branches to.

The *early white* and smaller sorts may be plaited together at top, tying them round with small yellow willow, for keeping them together.

The *Antwerps* will thrive well against a *north* wall or paling, and give *late crops*.

Where the small red and white Raspberries are found, destroy them,—and in their room plant the following sorts: *large red, smooth-cane double-bearing, large red and white Antwerps*, the *large common white, double-bearing white*, and *Woodward's new Raspberry*.

Some prefer to *prune* Raspberries in *autumn*, a practice not approved by Mr. Forsyth; because bearing the fruit on the wood of the preceding year, they are liable to be killed by frost in severe winters; but by deferring the *pruning till February*, there will be great *choice of fine wood* for bearing the following summer; *always rooting out or cutting down all the wood that bore fruit the preceding year*, which generally dies; *selecting only from five to seven* of the most vigorous and *strong shoots* from the *last year's wood*, to bear fruit the ensuing year. These shoots may be *pruned* to the length of *three*

or four feet, according to their strength, if they are of the smooth-cane double-bearing sort (which generally bears a second crop in autumn, and will in fine seasons continue *bearing from June to November*); but, if the large Antwerp, the shoots should be left five or six feet long.

Raspberries will *continue in bearing five or six years*; by which time there should be a *fresh plantation* to succeed them. The young plants will bear some fruit the first year, and come into full bearing the second year after planting. *If suffered to remain more than five or six years* on the same ground, they will *degenerate* and bear small fruit. Leave not above eight or ten of the strongest shoots, rubbing off or pulling up all the superfluous ones; and keep the ground well hoed and clear of weeds between the rows.

MULBERRIES.

MANY old Mulberry-trees are standing at this day about ancient monasteries and abbeys; from whence it is probable they had been introduced before the dissolution of those houses. It is said, they

were first introduced into England in 1596. But if so, the opinion of the Duke of Northumberland must be erroneous, when he said the four Mulberry-trees at Sion-house were above 300 years old : and Gerard says, in his history of plants, that in 1597 Mulberry-trees then grew in sundry gardens in England.

There is none worth cultivating for fruit in England, but the common Black Mulberry-tree, the fruit whereof is very wholesome ; and the Red or Virginian Mulberry.

Mulberries are raised in England from *seed*, or from cuttings and *layers*. The best *bearing branches* of old trees are to be chosen for cuttings and layers. Some of their branches bearing only *katkins*, and trees from them will yield fruit. From layers, they will generally take root sufficiently the first year to bear separating from the parent tree ; and should then be planted in a nursery, and trained up with *single stems*. In four years they are fit to plant out to remain. Give them distance, that the sun and air may have full influence on them ; the fruit, otherwise, being apt to turn mouldy. Also shelter them, in England, from east, north and west winds.

But, Mr. Forsyth says, the *best way to raise them* is from *former year's shoots*, having one joint of the two years' wood. Plant them out in *autumn*, if fine weather, or in *March*, in rows nine inches apart, and at two inches distance in the rows, leaving only *two or three buds above ground*: mulch the ground with leaves or dung well rotted, to keep it moist, and the plants will require little watering. If well thriven, the next year they may be transplanted into a nursery, and treated as directed for layers. Whilst they remain in the nursery they should be *transplanted* every three or four years. Plant the trees where they will drop the finest of their fruit on *grass*; when dropping on dug ground, the fruit would be lost.

Their best soil is a rich, light, and deep earth. The fruit is produced on the young wood; therefore only cut out such branches as cross others, and that are decayed or broken by accident; at the *same time* apply the *composition*. If, however, the heads become too full of wood, they must be thinned, for giving larger and better flavored fruit where the heads are thin of wood.

Mr. Forsyth found many Mulberry-trees in a very decayed state, and the trunks quite hollow; on which he tried the *composition*, cutting out all the *dead wood and canker* parts of some, and *heading down* others that were stunted and sickly. After these operations, they put forth vigorous branches, and bore excellent crops of fruit, more than double the size of that which they produced in their former state.

Those, he says, who have old decayed Mulberry-trees, should treat them in the same manner; but such as are *very much decayed* should be *headed down*: this will throw them into a healthy, bearing state, and in two or three years they will produce plenty of fine fruit.

As old Mulberry-trees, Mr. F. says, produce not only a greater quantity of fruit, but also much larger and of a finer flavor than young ones, it is well worth while to take some pains to repair the injuries which they may have sustained by accidents or age.

! This *pleasant and valuable fruit*, he says, is but little cultivated in England.

THE ALMOND.

THE following are the sorts propagated in England, for ornament and use :—The tender-shell'd almond ; the sweet almond ; the common or bitter almond ; the sweet Jordan almond ; the hard shell'd almond ; the dwarf, and the double-flowering almonds.

They are propagated by *budding* them on *plum*, almond, or peach-stocks. The next spring, train them for *standards*, or let them grow for *half standards* : but the common way is to bud them as high as it is wished the stem should be ; and the second year after they may be planted out for good. Transplant into a *dry* soil in *October*, when the leaves begin to decay : if into *wet* ground, *February* is the season. Budded on *plum* stocks, they thrive best in a wet soil ; and on almond and peach stocks in a *dry*. They require nearly the same management in *pruning* as the standard apricot.

Plant them, Mr. Forsyth says, always in a *sheltered* place, facing the *south*. If planted as *dwarfs*, they may be *covered* with poles stuck into the ground, thatching over the tops of the trees with

fern or other *light covering*, to prevent the blossoms being killed by the frost in *February* and *March*.

After the fruit is set and the leaves so far out as to cover it, if fine weather, the covering may be removed in the latter end of *April* or early in *May*.

They are sometimes planted on *walls*, and sometimes on *espaliers*.

Preserve them in dry sand or bran ; but they should be first thoroughly dried on shelves or boards in an airy place before they are put into sand or bran ; otherwise they will become mouldy.

CHESNUTS.

THE sorts mostly cultivated in England, Mr. Forsyth says, are the *Spanish Chesnuts*, which run into great varieties when raised from seed ; and the American sort, called *Cbinquapin*, for variety.

The Spanish Chesnuts are very fine trees, and well worth cultivating, both for use and ornament. The *timber* is reckoned equal to oak, and for casks

superior to it ; for when seasoned it is not so liable to shrink or swell as oak. They have a noble appearance, and so are adapted to parks.

Propagate them from seed gathered when thoroughly ripe, about the end of *October*.—Let them spontaneously open and drop from the trees, to be picked up in the morning. All that fall in the husk should be thrown in a heap in a shed, to remain three or four weeks to ripen. Then pick out the best, dry them on mats or cloths in a sunny situation. They are then laid up on shelves or a dry floor, turning them frequently. If some are dried in an oven after bread is drawn, and then *packed in boxes or jars with quite dry sand*, they will, he says, keep *plump and good*. If put in the oven when too hot, they will shrivel. Sow in beds of light earth in *November* ; the drills being nine inches apart and three deep : the nuts to be an inch apart in the rows, with the *points upwards* : cover with mould, and pat it down with the head of the rake. The *beds* four or five feet wide, raised a little in the middle to let off rain. If it appears the seeds are attacked in the ground by mice, cover the beds with slates, brick, or stone, till the nuts begin to spring : then off with the stone covering. If the winter sets in severely,

cover the beds with rotten dung, leaves, or old tan, before laying on the pavement.—If the autumn be wet, don't sow till *February*, or *March*, early.

Hoe between the nuts in the rows. The summer proving dry, water them once or twice a week. By *October*, or the following spring, they may be put into beds, in rows a foot apart, and four inches in the row, to remain two years longer; carefully trimming all the side shoots, leaving only one straight stem.

When *planted out* for good, let it rather be in autumn; they are to stand till *the next spring twelve-month*, and *then are headed down to two eyes above ground*, cutting near as may be to an eye, and *sloping to the north*, that the shoot which is thrown out may cover the stem in the first season, which it will do, and grow six or seven feet.—If they are not *headed down in this manner*, they will never be straight, handsome trees. *Young trees must not be headed down immediately after transplanting*. They ought to be *well rooted* before that operation is performed: and it is to be observed, that the *larger the stems* are when headed, the stronger and more luxuriant will the shoots be.

WALNUTS.

THOSE commonly cultivated in England are varieties from the common walnut, viz.—The *double*, the *large*, the *French*, the *thin-skinned*, and the *late*.

They are best raised from the nut, gathered full ripe. The *thin-shelled* are preferred for this purpose. When ripe, let them remain till they begin to drop off of themselves : shaking the tree will then bring them down. Beating with poles injures the tree much, by breaking the young shoots. They will be fit to transplant the *first autumn* after sowing, if they have thriven well—if not, let them continue another year.—Bed them out in the manner directed for Chesnuts ; *transplanting* every second or third year, until planted out for good. This causes their throwing out *fine horizontal roots*, and bring them to a *bearing state* much sooner than when they make *deep tap-roots*.

Train them up with fine *single stems* to seven feet high, before they are suffered to form *heads* ; the branches will also be out of the reach of cattle. The time of transplanting them out, depends on their

progress in the *nursery*: they must remain there till they have grown to a tolerable size, and to the height just mentioned as proper for standards.

The ground is to be well plowed or trenched; and the trees to be planted, at first, in *rows six feet* apart, and the *same distance from tree to tree* in the rows, in quincunx order; and thus remain until they come into bearing. After making choice of the best fruit-trees, the other trees may be planted for timber, or made use of in stakes or any other way. The bearing trees must be thinned as they increase in size, till they are at the proper distance for full-grown trees, which may be 24 to 48 feet, according to the richness of soil and progress in the trees' growth.

In *trimming* stems of *Walnut-trees*, cut off the shoots and small branches close to the bole; and in *lopping*, cutting out cross branches, or such as are damaged by winds and accidents, always cut at a *fork* or *eye*; otherwise a part of the branch will die and injure the tree. But be it a part or the whole cut off, the *composition* is to be immediately applied.

Walnuts thrive best in a *deep, rich soil*. They are well worth cultivating: the yearly value of the *fruit* being very considerable. There is a great deal made *by thinning the nuts for pickling*, for home and foreign markets. At Beddington, about 50 Walnut-trees, and but half of them full bearers, have been let at £30. £40. and £50. according to the crop: and the renter is thought to clear £50. by the bargain.

The leaves of Walnuts steeped in boiling water, and that infusion mixed with lime-water, soap-suds and urine, is very efficacious in destroying slugs and worms *in the ground*, and insects *on trees*.

Walnuts for keeping should drop of themselves, and afterwards be laid in an open airy place till they are thoroughly dried: then pack them in jars, boxes, or casks, with fine clear sand, well dried in the sun, in an oven, or before the fire, in layers of sand and walnuts alternately; set them in a dry place, but not where it is too hot. They so are kept till the end of *April*. If they ever become shrivelled steep them in milk and water, six or eight hours.

GRAFTING AND BUDDING :

AND

ON USING COMPOSITION INSTEAD OF GRAFTING-CLAY.

MR. FORSYTH gives directions for rendering *grafting* plain and easy to those who have not been regularly instructed in the art from general practice ; and he adds a method followed by him for some years ; and which, he thinks, will be found an improvement.

The shoots or cions used in grafting, called also *grafts*, are to be chosen with observing the following directions carefully :—1st. That they are shoots of the former year. 2dly. Always take them from healthy, fruitful trees. If they be sickly trees, the *grafts* often partake of the distemper ; and if taken from young luxuriant trees, they may continue to produce luxuriant shoots, but are seldom so productive as those taken from fruitful trees, whose shoots are more compact, and the joints closer together. 3dly. Prefer those grafts taken from the lateral or horizontal branches, to those of the strong perpendicular shoots.

These grafts should be cut off from the trees *before their buds begin to swell* ; which generally is three or four weeks before the season for grafting : therefore when they are cut off, lay them in the ground with the *cut downwards*, burying them half their length, and covering their tops with dry litter, for preventing their drying. If a small joint of the former year's wood be cut off with the cion, it will preserve it the better ; and when they are grafted, this may be cut off, for at the same time the cions must be cut to a proper length before they are inserted in the stocks ; but till then the shoots should remain of the full length, as taken from the trees. If these cions are to be carried far, their ends ought to be put in a lump of clay, and wrap them up in moss, which preserves them fresh a month or longer ; but these should be cut from the trees earlier than what are to be grafted near where the trees grow.

Next of the *stock*, or trees intended to be grafted : these are either old trees growing where they are to remain, whose fruit is intended to be changed, or young trees raised in the nursery for a supply to the garden. In the former, there is no other choice than of the *branches*, such as are

young, healthy, well situated, and have smooth bark: if these grow against walls or espaliers, there should be grafted six, eight or ten branches, as is the size of the trees by which they will be sooner furnished with branches again, than when a less number of cions are put in ; but in standard trees, four, or at most six cions will be sufficient.

In the choice of *young stocks* for grafting, prefer those raised from seeds, and that have been once or twice transplanted.

Next to these, the stocks raised from cuttings or layers. Suckers from the roots of other trees should always be rejected.

Having directed the choice of cions and stocks, he then speaks of the *operation*, and points out the following tools, viz.

1st. A neat small hand-saw for cutting off the heads of large stocks.

2. A good strong knife, with a thick back, to make clefts in the stocks.

3. A sharp pen-knife, or budding-knife, to cut the grafts.

4. A grafting chisel and a small mallet.

5. Bass strings or woollen yarn, to tie grafts with ; and such other instruments and materials as may be found necessary.

6. A quantity of clay, prepared a month before wanted, and kept turned and mixed like mortar every other day : this is to be made thus—

Get a quantity of strong, fat loam : take new stone-horse dung, and break it in among the loam ; cut a little straw or hay very small and mix amongst it, for making the loam hold together better ; and if there be a quantity of salt added, the clay will be prevented from dividing in dry weather : stir these well together, putting water to them as in making mortar. It should be hollowed like a dish, filled with water, and kept every other day stirred : but let it not be exposed to frost or drying winds ; and the oftener stirred the better.

Of late years, says Mr. F. some persons have made use of another composition for grafting, which keeps out the air better than *clay*. It is composed of *turpentine*, *bees-wax* and *rosin*, melted together; when of a proper consistence it is put on the *stock*, round the *graft*, as the clay usually is applied. If but a quarter inch thick, it keeps out the air better than the clay; and as cold will harden this, there is no danger of its being hurt by *frost*, which is apt to cause the clay to cleave, and sometimes to fall off; and when the *heat* of the summer comes on, this mixture will melt and fall off without trouble. In using this, there should be a tin pot, with conveniency to keep a very gentle fire with small coal; otherwise the cold will soon condense the mixture: but be careful not to apply it too hot, lest the graft be injured. A person a little accustomed to this *composition* will apply it very fast; and it is much easier for him to work with than clay, especially if the season is cold.

There are several ways of grafting, but there are four principal ones, [see pl. XI.] Perhaps the common whip-grafting alone might suffice for the *farmer* and *country gardeners'* purposes in grafting:

1. *Grafting in the rind, or shoulder grafting, or crown grafting* ; proper only for large trees : performed the end of *March* or early in *April*.

2. *Cleft-grafting, or stock, or slit-grafting* : intended for lesser stocks, one or two, or more inches diameter : in *February* or *March*.

3. *Whip-grafting, or tongue-grafting* ; proper for small stocks, of one inch, half an inch, or less diameter : “It is the most effectual of any, and is the most in use.”

4. *Grafting by approach, or ablactation*. This is practised when the *stock to be grafted on*, and the *tree from which the graft is taken*, stand so near each other that they may be joined ; and should be performed in *April*. It also is called the *Inarching* method, and is chiefly used for *Jasmines, Oranges*, and other tender *exotics*.

For the several methods, in general, see the plate XI. But the common method of *whip-grafting* will suffice for the *farmer's* and *country gardener's* purposes.—It is thus performed by cutting off the head of the stock *sloping* ; then make a *notch*

in the slope towards the upper part downward, a little more than half an inch deep to receive the cion, which must be cut with a slope upward, and a slit made in this slope like a tongue, which tongue must be inserted into the slit made in the slope of the stock, and the cion is placed on one side of the stock, so that the two rinds of both cion and stock may be equal and join together exactly : then a ligature of bass fastens the cion so that it may be easily displaced ; after which it is clayed over, as in former instances.

Grafting in the 4th method may, however, be proper to practice sometimes, as the *walnut*, *fig*, *mulberry*, and certain other exotics, cannot be grafted with effect in any other method, especially evergreens : but then the trees are always weakly.

In a long continuance of *dry weather*, the grafts frequently *fail of taking*. It is therefore best to graft in moist giving weather.

It is better to use the *composition* on many accounts. Rubbing some of it into the incision prevents *canker*, and in applying round the graft a much less quantity will suffice than of the *clay*.

It need not be more than three inches round in grafting small stems or shoots, and in proportion for what are larger : the composition will keep the *cion* moist, and will not crack and fall off in dry weather as clay will. This composition used in grafting should be made to work easily with a hand or knife, *rather softer* than grafting-clay commonly is.

Grafting or *budding* should be performed near as may be to the upper side. Insert the *cion* or *bud* at the joint a little above the cross shoot.

Budding is best learned how to be effectually performed *by actual* instruction, seeing it done in experience : which in every neighbourhood may be obtained. In three or four weeks it may be seen what *buds* have taken : the shrivelled and black are dead. Those that remain plump are to have their bandages then loosened, to prevent pinching the stock and kill the bud.—The March following cut off the stock three inches above the bud, sloping it.

OF A GARDEN.

MR. FORSYTH recommends that the garden be on a *gentle declivity* towards the south, a little eastwardly inclined. If in a bottom, the wind has the less effect on it ; but then *damps* and *fogs* will be prejudicial to the fruit and herbage. If too high situated, the fury of the winds will damage the branches, blossoms and fruit. It should be well sheltered from the *north* and *east*, to prevent blighting winds affecting plants ; and also from the westerly winds, hurtful to gardens in spring or summer months.

The best shelter of them is from gentle rising hills and plantations of forest-trees, at due distances not to *shade* the garden ; giving a free passage of sun and air. *Fruit-trees*, in shrubberies, he recommends to be intermixed.

In laying out a new garden, he says, choose a *good soil*, the *deeper the better*, of a mellow, pliable nature, moderately dry in quality. If it has an *uneven surface*, do not be persuaded to level it. The best soil is a rich *mellow loam* ; the worst a stiff heavy clay. A light sand is also unfit. Whenever

horse dung is applied, it is first to be *perfectly* rotted : it otherwise will burn up the crop.

The form he would have in preference, is an oblong or square, if at liberty ; and the size from one acre to six or eight within the wall, according to demand for vegetables in the family. *Brick wall* is preferable to stone, and ought to be 10 to 12 feet high : but if there be a plenty of *walling* or ground sufficient to admit it, he would prefer a wall of *ten feet* high, to those higher, being convinced they will be more convenient. If the ground is to be spared, *surround the garden with a border* or slip, 40 to 60 feet wide, or more ; and this, he says, inclose again with an oak paling, 6 to 8 feet high, with a *cheval de frise*. He recommends a *cheval de frise* to be thus made : A piece of wood, long as convenient, about four inches broad, one inch and quarter thick ; the upper side planed to an edge, sloping from the top and centre on each side, like a roof. Draw a line on *each side* from end to end about one fourth of an inch below the upper edge and centre : through these lines drive *twelve-penny* nails about four inches distance from each other, so as to come out near the upper edge on the opposite side. Each nail, he adds, should be opposite the space between two nails on

the other side. The *nail-heads* should be sunk in the wood, and small strips nailed over them : then drive in tenter-hooks between the nail points, and nail the whole firmly on the outside of the top of the paling.

By making slips on the outside of the *garden wall*, you will have ground for gooseberries, currants, strawberries, &c. cucumbers or melons : and both sides the wall may be planted.

The new garden should be ploughed or dug three or four times before any thing be planted in it.

It is a convenience that a garden lies near a river or brook ; from these conduct the water by drains or pipes. If the garden is too high for distributing the water in those ways, and it is near a public road, and on a declivity, make a drain or cut from the road, for carrying the water of it in *rainy weather* to a large cistern or tank in the upper part of the garden. The best time is the *night* for turning on the water into the garden. The pipes, cocks, &c. for facilitating it will seem a considerable expence at first ; but they repay it by saving *time* which would be spent in *pumping* and *carrying* water. If pumped

from a *deep well*, it should be into a large reservoir, in which it should be exposed to *sun* and *air* some days.

The middle walks, he says, should be seven feet wide, enough for a cart to pass ; the others three or four feet broad, with a border on each side, 5 or 6 feet wide at least between the walk and the *fruit-trees*. In kitchen gardens, walks are generally gravelled, seldom in turf ; frequent wheeling and treading soon destroying the grass : but a *binding sand* makes good walks, easily kept : for when moss or weeds *begin* to grow, they may be cleaned with a horse hoe, or scuffled over with a Dutch hoe, in dry weather, raking it a day or two after ; but *sea-coal ashes* make the best kitchen garden walks, easier kept than others, and firm and dry : cleaner than sand, especially after a frost. *Bottoms* of walks are filled with brick rubbish, chippings of stones, or gravel and stones. There sometimes will be under-ground drains to make.

When the *soil is wet and stiff*, subject to detain moisture, under-ground drains must carry off the water ; making the main drain under the *walk*, to receive and carry off the water under the quarters.

Good, well-flavored fruit can never be produced, unless *draining*, where the soil lies wet, be practised; and kitchen plants will also be very defective without that attention.

Borders under the walls, *inside*, should be 10 to 20 feet wide, as is the size of the garden, for giving free passage to the roots of the trees to spread. A foot *path* should be two and a half foot from the wall, for greater ease in nailing trees, gathering fruit, &c. This *walk* should be two to two and a half feet wide (to admit a barrow or barrow-engine in watering the trees), and covered with sand, or *coal-ashes* better, about 2 or 3 inches thick, without rubbish or gravel below. On these *borders* may be early or late crops; but avoid to plant any *deep-rooting plants*, such as cabbages, beans, peas, (except peas for the early frames), as they would be very *hurtful to the trees*.

Melons are best worked in *brick-pits*, coped with stone or oak, 12 feet *wide* and two and a half *deep*: the *length* according to the number of frames to be worked. Size of lights for early melons, 5 feet *long*, 3 *broad*:—for others they require to be 6 feet *long*, and four *broad*. The former should be four,

and the latter three light boxes.—For the *pits* a nine-inch wall will be sufficient.

There should, he says, be *a walk between the ridges*, 6 or 7 feet *broad*, sufficient to admit a cart to carry dung ; much more expeditious than wheeling. The *walk* should be made up as *high* as the coping, and sloping gently towards each end ; the bottom should be filled up and covered as before directed.

A loose *drain* should be made along the middle of the bottom of the *pit*, to carry off wet and oozing of the dung to a cistern or tank made on purpose to receive it.

When a garden is planted and finished, says Mr. Forsyth, it will be convenient to have a *plan* of it, with the *name* of each tree inserted in its proper place.

Walls of kitchen gardens, from ten to fourteen feet high, should have the *foundation* two or two and a half bricks thick ; the off-set not above one course higher than the level of the border : the wall then to set-off a brick and a half thick. *Piers* should

strengthen the walls, 40 to 60 feet apart ; to project half a brick beyond the wall. If the *coping* is of wood, it answers well for hanging nets to against thefts of birds.

He repeats the superiority of bricks over stone walls, favoring fruits better in ripening. When a *kitchen garden* contains *four acres*, it may be intersected by two or more *cross walls* ; which greatly *augments the quantity of fruit* ; *warms and shelters* the garden from high winds.

ORCHARDS.

WHERE a *large supply of fruit* is wanted, Mr. Forsyth says, *Orchards* are appropriated to the growth of *standard fruit-trees* only ; and generally consist of apple-trees, pear-trees, plum-trees and cherry-trees ; but a complete Orchard ought also to have quinces, medlars, mulberries, services, filberts, Spanish nuts, and barberries ; as also walnuts and chsenuts. These last would break high winds, and he would prefer to plant them along the boundary of the Orchard. In choosing the trees, admit none but with good roots, fair clean stems, and proper heads.

In selecting pears and apples let the assortment range in succession, for supply of the table during the whole year. A very few of the *summer* sorts will suffice ;—more of the *autumn* ;—still more of the *winter* will be called for. On the winter sorts the dependence is from *January to July*.—The *method of preserving them*, post.

What has been said of the situation and soil of a *Garden*, also applies to *Orchards*—that they be rather elevated than low. On a gentle declivity, open to the south and south-east. Also they should be well sheltered from the eastern, northerly and western winds : but see of *Gardens*, in its place. Such as *walnut* and *chesnut*-trees are advantageously placed on the exterior of the Orchard. The size of an Orchard in the cyder-making counties of England may be one to twenty acres, or more. A loamy soil is best : shingly and gravelly soils disagree with fruit-trees, unless intermixed with a *loam*. Orchards should be dunged once in two or three years.

He recommends washing the Orchard trees annually in *February* or *March*, with the following mixture, to destroy eggs of insects, and prevent moss from growing. Mix fresh *cow-dung* with

urine and *soap-suds* ; and with the mixture wash over the stems and branches of trees, as you would your room with whitewash ; cutting off the canker parts and scrape off the moss, before the washing. In the course of the summer there will be a fine new bark coming on. Pare off all old canker. When necessary to take off all the outer bark, the stem, &c. are to be covered with the *composition* and *powder*, patting it gently down, as in the case when large limbs are cut off.

Repeating the above wash in autumn, after fall of the leaf, will destroy the eggs of many insects, that hatch in autumn and winter. This washing is found of great service to all fruit and forest trees.

GATHERING APPLES AND PEARS.

TIME AND MANNER THEREOF.—MANAGEMENT
OF THE FRUIT-ROOM, &c.

NEVER beat or shake apples down—hand-pick all, from standing on steps for the purpose.—They should be light, and so contrived that the ladder may be disengaged from the back at pleasure ; fastening

together by a bolt at top. At top should be a broad step to stand on, with room for the basket holding the fruit. Have, in the beginning together, hand-baskets of different sizes, and also large baskets or hampers, and wheel-barrows. At the bottoms of the large baskets and hampers, perfectly *dry* short fine grass from summer mowings, kept clean and dry for the purpose.

He observes to gather the fruit, as a mark of its ripeness, when it *begins to fall*, (not wind-falls, or from the caterpillar). If the fruit comes off without any force used, it is presumed to be ripe enough. But sickness, &c. of the trees may make it seem riper than in fact it is. All fruit will *sbrivel*, he says, that is gathered before it is ripe.

If the fruit be in the least bruised it will not keep ; therefore the person on the steps picks it carefully, and gently lays it in the basket : and the small baskets are to be gently emptied into the large.

When the fruit begins to fall of itself, cover the ground under the tree with soft grass mowings, pease-haulm, or oat or barley straw, quite *dry*. This that drops of itself, lay up separate from, and use it before, that which is *hand-picked*.

In the fruit-room lay dry soft grass on the floor : lay the fruit gently from the baskets in heaps on the grass. To *sweat* the fruit, cover it 2 or 3 inches thick on the top with some of the grass ; the heaps may be two to three feet high. They lie in heaps two weeks ; then open and turn them over, wiping each apple or pear with a *dry* cloth ; to be frequently *dried* during the process. The heaps now remain 8 or 10 days covered as before, for throwing off the watery crudities. Then *wipe* the fruit one by one.

Gather the fruit in *dry* weather, and when the dew is off ; nor is it to be gathered in the evening after the dew has begun to fall. Air should be sometimes admitted for carrying off the sweat.

The most perfect way of keeping, as used in England, is to pack it in glazed earthen jars, separately wrapping pears and apples in soft paper. Put *dried* bran in the jar, then a layer of fruit ; then a little more bran ; and so on alternately. When full, gently shake the jar ; fill up with bran and paper at top of all. Cover with bladder to perfectly exclude accession of air. Fit on the cover of the jar ; and it is best kept in a room where a fire may be, in wet or damp weather.

CANKER AND GUM.

CANKER is a disease which occasions the *bark* of trees to grow *rough and scabby* ; and turns the *wood* affected to a *rusty, brown colour*. It will kill the tree if not stopt.

The Canker may arise, on apple-trees, from injudicious pruning, from the *footstalks* of the fruit being *left on the trees*, and from injuries in applying *ladders* in gathering the fruit.—Another cause, very *wet autumns*, which prevents the young wood from ripening, and a *hard frost* setting in after it, *kills the young shoots*. These are not to be left on the tree. *Birds and insects destroying the buds*, also give the Canker.

Dead shoots left on the tree through summer, bring on Canker. These are to be cut off in the end of *April* or early in *May*. He advises to cut two or three buds, or even more, below the apparently diseased part : cut down till the brown colour in the shoot disappears, and nothing but sound *white wood* remains.

All the diseased parts of the bark must be pared off. The *inner white bark* is frequently infected : *this also* must be *cut away* till no infection appears to remain. The *infection* in the *inner bark* appears like *dots* made with a pen ; all whereof is to be *cut out clean*. Wherever *Gum oozes*, be assured the Canker is not quite eradicated.

When the trunk is become hollow, cut the loose rotten part clean out, till you come to the sound wood, and round the edges of the hollow part. Then apply the *composition* in a liquid state, with a painter's brush : then shake some of the *powder of wood-ashes and burnt bones* over the *composition*, and pat it gently down with the hand. See of making and laying on of the *composition*.

When the decay is great, the ground is to be opened, the roots examined, and the rotten parts to be cut away : then make up a mass of the *composition*, mixed with some clay ; fill the hollow with it, to within about two inches of the surface of the ground, treading it, or pressing it with the hand close as possible, for preventing wet from penetrating to the roots, and leave the surface of the *composition* sloping from the tree towards the outside of the border, &c.

The *Gum* is a kind of gangrene incident to *fruit-trees of the stone kind*; and arises from *injudicious pruning*, from *bruises*, or injuries received in the wood or bark. The *Gum* is to be cut out perfectly clean; and *grubs* must be sought for, and they are to be cut out before the *composition* is applied.

OF MIL-DEW, HONEY-DEW, AND BLIGHTS.

MR. FORSYTH, in general, speaks in the strain of others writing on these subjects, who have little more than guessed at the nature of these disorders: the most likely surmise of *Mil-dew*, &c. seems to be what he quotes from Mr. *Segar*; where he says, that *Mil-dew* is of a very sharp corrosive nature, and by its acrimony hinders the circulation of the nutritious sap.

Mr. Forsyth says, when danger is apprehended, wash or sprinkle the trees well with urine and lime-water mixed; and when the young and tender shoots are much infected, wash them well with a woollen cloth dipped in the mixture following, to the clearing them of all glutinous matter, that their

respiration and perspiration may not be obstructed : Take tobacco a pound, sulphur two pounds, unslacked lime a peck, and a pound of elder buds : on these pour ten gallons boiling water—cover it close, to stand till cold : then add cold water, as much as will fill a hogshead. After standing a few days to settle, take off the scum, and it is fit for use.

The Honey-dew he directs to be treated in the same manner : and he cautions that trees be washed or watered early enough in the day to dry before the cold air of the night arrives ; nor should it be applied whilst the sun shines very hot.

Blights, he says, sometimes destroy the whole tree ; but oftener the leaves and blossoms only. Wash, he adds, with soap-suds and urine ; the sooner the better ; and even with a woollen cloth dipped in the same liquid as above directed for mil-dew.

OF INSECTS.

UNDER the head of Insects, Mr. Forsyth gives a long list of them ; concerning which, the imagination becomes tired ; and it is tedious, and too ge-

nerally unsatisfactory. Of the *Aphis* ; he says the Aphides or Plant-lice are a numerous tribe, amounting to 75 species. Of the *Acarus* there are 82 species. *Moisture*, he thinks, best destroys them, as *in hot-houses* it does many other insects. The *Acarus* (or Red Spider) also destroy or much injure *melons* in dry weather. There are other species of 160 sorts.

It would be heavy work to enumerate those plagues, when the accounts of them and the methods proposed for reducing them are not generally satisfactory for answering the views of the husbandman therein. The general applications to the trees and plants are *powders of ashes and lime mixed and strewed on them*—also *lime-water*, strewed through the tube and its head, of a water engine that forces.—Moreover, *in hot-houses*, *moisture* destroys some sorts—Water alone is applied often in hot-houses. *Melons* he directs to be examined, and when the leaves curl and crack in the middle, the *Acarus* or Red Spider may be presumed to have effected the injury, although as yet they may not be visible to the eye. In this state of the melons, in fine warm sunny weather, water them all over the leaves from a watering-pot with a

rose ; or an engine, about six in the morning, and about eight o'clock *shade them with mats*, if the sun shines, and shut the frames close down till eleven : then admit a little air, the mats remaining till three in the afternoon ; then take them off. Endeavour to water the under side of the leaves, and the vines may be cautiously turned partly for the purpose. In cold frosty weather do not sprinkle the plants.

A wash of *urine and soap-suds* accumulated and stored in *winter*, he largely uses to his trees dis-tempered with insects, caterpillars or vermin ; and in *summer* the mixture is lowered with water. It kills also *slugs* near the roots of trees. Urine and suds are saved in tubs in winter for the summer's use.

On Forest-Trees his treatise is important ; but it is here prolix ; and being a subject not yet scarce and striking to the attention of the American people, this is for the present here omitted.

GENERAL OBSERVATIONS

ON THE

DISEASES, DEFECTS AND INJURIES OF FRUIT, AND
FRUIT-TREES.

MR. FORSYTH, in thirty years practice in cultivating, pruning, and keeping garden fruit-trees, observed that from *natural* causes, *accidents*, and *unskilful management*, they were subject to *injuries* of various kinds, which always *diminished* their fertility, and frequently rendered them wholly unproductive.

He thereupon offers to disclose his practice and management with his *composition*, formerly applied in the manner of a plaster, but now in a *liquid* state, and laid on with a painter's brush. He imputes to it a *soft* and *healing nature* ; an *absorbent* and *adhesive* quality ; and that by *resisting the force of washing rains*, the contraction of *nipping frosts*, and the effects of a *warm sun* or *drying winds*, it excludes the pernicious influence of a changeable atmosphere.

The discovery of it, he adds, is the result of much *reflection* and *study*, during a long course of years, and of a great variety of experiments, made at a very considerable expence, to ascertain the efficacious powers of the application. “ Nor shall I hesitate a moment to declare my firm belief, that *wherever it shall be properly applied* by the *proprietors* of *gardens* or *orchards*, and *woods*, it will be productive of all the advantage that can be derived from *restoring* as well as *preserving* *vigour* and *fertility* in all kinds of *fruit-trees* ; as also from *preventing decay*, and promoting health and sound timber in every species of *forest-trees*.”

Mr. Forsyth's Directions for making a COMPOSITION for curing diseases, defects and injuries in all kinds of Fruit and Forest-trees—and the method of preparing trees and laying on the Composition.

“ Take one bushel of fresh *cow-dung*, half a bushel of *lime rubbish* of old buildings (that from the ceilings of rooms is preferable), half a bushel of *wood-ashes*, and a sixteenth part of a bushel of pit or river *sand* : the three last articles are to be sifted fine before they are mixed ; then

“ work them well together with a spade, and afterwards with a wooden beater, until the stuff is very smooth, like fine plaster used for the ceilings of rooms.

“ The Composition being thus made, care must be taken to prepare the tree properly for its application, by cutting away all the dead, decayed and injured parts, till you come to the fresh, sound wood, leaving the surface of the wood very smooth, and rounding off the edges of the bark with a draw-knife or other instrument, perfectly smooth, which must be particularly attended to ; then lay on the plaster about one eighth of an inch thick all over the part where the wood or bark has been so cut away ; finishing off the edges as thin as possible : then take a quantity of dry powder of wood-ashes mixed with the sixth part of the same quantity of the ashes of burnt bones ; put it into a tin box, with holes in the top, and shake the powder on the surface of the plaster, till the whole is covered over with it, letting it remain for half an hour to absorb the moisture ; then apply more powder, rubbing it on gently with the hand, and repeating the application of the powder till the whole plaster becomes a dry smooth surface.

“ All trees cut down near the ground should
“ have the surface made quite smooth, rounding
“ it off in a small degree, as before mentioned ;
“ and the dry powder directed to be used after-
“ wards should have an equal quantity of powder
“ of alabaster mixed with it, in order the better
“ to resist the dripping of trees and heavy rains.

“ If any of the Composition be left for a future
“ occasion, it should be kept in a tub or other ves-
“ sel, and urine of any kind poured on it, so as
“ to cover the surface ; otherwise the atmosphere
“ will greatly hurt the efficacy of the application.

“ Where lime rubbish of old buildings cannot
“ be easily got, take pounded chalk, or common
“ lime, after having been slacked a month at least.

“ As the growth of the tree will gradually af-
“ fect the plaster, by raising up its edges next the
“ bark, care should be taken where that happens
“ to rub it over with the finger when occasion may
“ require (which is best done when moistened by
“ rain), that the plaster may be kept whole, to
“ prevent the air and wet from penetrating into
“ the wound.”

“ *Additional Directions for making and using the Composition.*

“ To the foregoing directions for making and
“ applying the *composition*, it is necessary to add
“ the following.

“ As the best way for using the composition is
“ found, by experience, to be in a *liquid state* ;
“ it must therefore be reduced to the consistence
“ of pretty thick paint, by mixing it up with a
“ sufficient quantity of *urine* and *soap-suds*, and
“ laid on with a painter’s brush. The *powder* of
“ *wood ashes* and *burnt bones* is to be applied as
“ before directed, patting it down with the hand.

“ When trees are become hollow you must
“ scoop out all the rotten, loose and dead parts
“ of the trunk, till you come to the solid wood,
“ leaving the surface smooth ; then cover the hol-
“ low, and every part where the canker has been
“ cut out, or branches lopped off, with the *com-*
“ *position* ; and as the edges grow, take care
“ not to let the new wood come in contact with
“ the dead, part of which it may be sometimes
“ necessary to leave ; but cut out the old dead

“ wood as the new advances, keeping a hollow
 “ between them, to allow the new wood room to
 “ extend itself, and thereby fill up the cavity,
 “ which it will do in time, so as to make as it were
 “ a new tree. If the cavity be large you may cut
 “ away as much at one operation as will be suffi-
 “ cient for three years. But in this you are to be
 “ guided by the size of the wound and other cir-
 “ cumstances. When the new wood, advancing
 “ from both sides of the wound has almost met,
 “ cut off the bark from both the edges, that the
 “ solid wood may join, which, if properly ma-
 “ naged, it will do leaving only a slight seam in
 “ the bark. If the tree be very much decayed,
 “ do not cut away all the dead wood at once,
 “ which would weaken the tree too much, if a
 “ standard, and endanger it being blown down by
 “ the wind. It will therefore be necessary to leave
 “ part of the dead wood at first, to strengthen the
 “ tree, and to cut it out by degrees as the new
 “ wood is formed. If there be any canker, or gum
 “ oozing, the infected parts must be pared off, or
 “ cut out with a proper instrument. When the
 “ stem is very much decayed, and hollow, it will
 “ be necessary to open the ground and examine the
 “ roots; then proceed as directed for hollow peach

“ trees, [see pl. II. and V. which shew the manner
“ of preparing hollow trees, and also the growing
“ of the wood.]

“ Some months before the publication of the *Ob-*
“ *servations on the diseases, &c. of fruit and forest*
“ *trees*, I had tried the composition in a liquid state,
“ but did not think myself warranted to make it
“ public until I had experienced its effects through
“ the winter. The success answered my most san-
“ guine expectations; and I have used it in that
“ way ever since. By using the composition in a
“ *liquid state*, more than three fourths of the time
“ and labour is saved; and I find it is not so liable
“ to be thrown off as the lips grow, as when laid on
“ in the consistence of plaster: It adheres firmly to
“ the naked part of the wound, and yet easily gives
“ way as the new wood and bark advances.”

“ The first time that I tried the composition in a
“ liquid form was upon an elm which had been
“ planted about twenty years. It had been very
“ much bruised by the roller, had several cavities
“ in it, and was very much *bark-bound* besides.
“ Having prepared the wounds, and applied the
“ composition with a painter’s brush, I took my

“ knife and *scarified* the tree in four places ; I also
 “ shaved off with a drawing-knife all the cankerly
 “ outer bark, and covered the *whole tree* with the
 “ *composition*, shaking the *powder of wood-ashes and*
 “ *burnt bones all over it*. A very heavy rain began
 “ in the evening, and continued all night ; yet, to
 “ my great surprise, in the morning I found that
 “ only some of the powder, which had not had time
 “ to dry and incorporate with the composition,
 “ was washed off. I now repeated the powder,
 “ and without any thing more being done to the
 “ tree, the wounds healed up, and the bark was re-
 “ stored so compleatly that three years ago it could
 “ hardly be discovered where the wounds had been.
 “ The scarifications had also disappeared. Some
 “ of the wounds were thirteen inches long, eight
 “ broad, and three deep. Since the time when it
 “ was scarified, the tree has increased ten inches
 “ more in circumference than a healthy tree plant-
 “ ed at the same time with it, about sixteen feet
 “ distant, which was not scarified.”

BUDDING.

THIS is practised upon *all sorts of stone fruit* in particular ; such as peaches, nectarines, cherries, plums, &c. also oranges and jasmynes ; and is preferable to any sort of grafting for most kinds of fruit.

Provide a sharp pen-knife with *flat haft* for raising the bark of the *stock* to admit the *bud*, and some sound *bass mat* soaked in water. The *cuttings* being taken off from the trees, choose a *smooth part of the stock*, 5 or 6 inches above the surface of the ground, if designed *for dwarfs*, and for *half standards* at three feet ; but *for standards*, bud six or more feet above the ground : then *cut horizontally* across the rind of the stock ; and from the *middle* of that cut make *a slit* downwards about two inches long, forming a T : be careful not to cut too deep and wound the stock. Having cut off the *leaf from the bud*, leaving the footstalk remaining, make a cross cut about half an inch below the eye, and with the knife *slit off the bud with part of the wood* to it, in form of an escutcheon ; this done, next with the knife *pull off that part of the wood* which was taken *with the bud*, observing if the eye of the bud be left

to it or not, (buds that lose the eye in stripping are good for nothing); then gently *having raised the bark of the stock* where the *cross incision* was made, with the flat handle of the knife *clear off the wood*, thrust the bud therein, *placing it smooth between the rind and the wood* of the stock, *cutting off* any part of the rind belonging to the bud which may be too long for the slit made in the stock; and having thus *exactly fitted the bud to the stock*, tie them closely round with *bass mat*, beginning at the *under part of the slit*, and proceed to the top; taking care *not to bind round the eye of the bud*, but leave it open.

In three or four weeks, you will see which have taken. The shrivelled and black are dead. The fresh and plump are joined; at which time loosen the bandage, that the stock be not pinched.

In the next *March* cut off the stock three inches above the bud; sloping it that water pass off: to the part above the bud, fasten the shoot proceeding from the bud. This must continue but one year: then cut it off close above the bud.

Time of innoculating is the middle of *June* to the middle of *August*. *The time* may be ascertained by

trying if the *buds will come off* well from the wood or not.

Apricots are the first, and *oranges* commonly the last sorts inoculated. *Oranges* should never be inoculated before the middle of *August*. Cloudy weather is the best : rather avoid the middle of the day for it. Avoid the erroneous practice of throwing cuttings into water.

All trees of the same genus, which agree in their flavor and fruit, will take upon each other under grafting or inoculation : All the *nut-bearing* trees on each other, and all the *plum-bearing* trees, including almond, peach, nectarine, apricot, &c.

Success of experiments on Heading-down, Composition, &c.

MR. FORSYTH says, that since he published "Observations on the diseases, defects and injuries in Fruit and Forest trees," he has been assiduous in making experiments. A great many *hollow trees* that had little more than the bark remaining sound, have within a few years been filled up :—Others that were *headed down* within a few feet of the

ground have their stumps now completely covered by the leading shoot, *forming handsome trees*; and *the places where they were headed* are only discerned by a faint cicatrix. There were many such instances. He gives but few accounts of them.

A lime-tree, he says, 18 inches in diameter, whose trunk was decayed and hollow from top to bottom, to which, after cutting out the decayed wood, he had applied the composition 16 years ago, was last year cut down, on purpose to examine the progress it had made in the interior part, and was found entirely filled up with new, sound wood, completely *incorporated* with what little old wood remained when he first took it in hand. The body of this tree he keeps, cut into short lengths, to shew to others.

An old elm, he adds, the inside totally decayed, and two large cart loads of rotten wood taken therefrom at different times, has made shoots upwards of 20 feet high in the course of six years. Another elm, headed twenty feet from the ground, has produced a shoot 46 feet high, and 5 feet 9 inches in circumference.—A lime, *cut down near the ground*, has now a shoot 20 feet high, which entirely covers

the stump, *forming a fine tree*, 21 inches in circumference.—A sycamore, treated in the same manner, is now 30 feet high, and 26 inches in circumference. Another is 30 feet high, and 2 feet in circumference. These, he says, are *now fine thriving trees, and the cicatrices hardly discernable !*

A horse-chesnut, *headed down*, has produced, from its hollow stump, four fine shoots, one whereof is *cut down*, the other three are upwards of thirty feet high ; and one of them is 26 inches in circumference. Two of the remaining three are to be cut down, leaving *one* to form the body of the tree.

About two and a half feet in length, on one side of a large diseased elm, which was for some time *left to nature*, still continued to decay till the composition was applied : *new wood and bark are now forming.*

An elm, entirely hollow, was also *headed down*. The new head now spreads 24 feet, and is 18 feet high. Another large hollow elm, near the last, was headed down : it afterwards produced a shoot 60 feet high, and three and a half feet in diameter. There are many other elms, some with wounds 10

feet long and 2 feet broad, now entirely filled up ; besides many sycamores, oaks, and other forest trees, all restored to a flourishing state, *by having the dead wood cut out, and the composition applied.* An oak that was *headed down* six years ago, is represented in pl. XII.

In *hollow trees*, the *rotten and decayed* wood must be *cut out* at different times, as the new wood comes in contact with it : but beware not to cut out too much at once ; but leave enough to support the tree and prevent it from being blown down by high winds, till the new is strong enough for that purpose : the remainder may then be cut out.

Mr. Aberdeen, gardener, has followed Mr. Forsyth's method for some time with great *success*, in the *house* and “on the *natural wall*.”

Hearing several years of the very *fine* and *large* crops produced in the *forcing houses* on Black Heath, Mr. Forsyth took a journey thither in company with Mr. Wedgewood, to inquire into the method pursued there for obtaining these superior crops, and was candidly told that Mr. Stuart several years ago *had seen Mr. Forsyth's method* used at Ken-

sington Gardens, and was convinced of its advantages above the old ; he adopted it with great success.

John Wedgewood, Esq. practises *in Mr. Forsyth's method* with great success.

Lord Frederick Campbell sent to Mr. Forsyth a list of 85 fruit-trees that were *headed down*, and afterwards *trained and pruned* according to Mr. F.—From a cankerous, unfruitful state, ever green with moss, they are now *fruitful, healthy and flourishing*.—These trees are now proper patterns for others desirous of giving the *composition*, and method of training and pruning recommended by this treatise, a fair trial.

Successful trials have also been made, of *the same*, at the Duke of Dorset's.

THE GOOD EFFECTS

OF

MR. FORSYTH'S COMPOSITION, IN VARIOUS CLIMATES.

THE *Economical Society of St. Petersburg* expresses great satisfaction with the *effects* of Mr. *Forsyth's* applications of the *composition*, &c. and this excellent idea of a Mr. *Guthrie* to him, appears well worth our notice—"That he is happy in expressing, individually, his satisfaction from Mr. *Forsyth's* sagacious application of the *chiurgical art* to *vegetation*; and declares that *the extirpation of the diseased parts*, and the *use of an unguent* to ward off the *noxious action of the air and humidity*, during the *exertions of nature* to repair loss of substance, and the *languid circulation of the vegetable juices*, appear highly judicious."

In the hot climate of *India*, and the opposite extreme of the cold of *Russia*, the *composition* was in constant and successful use; even 400 miles south of *Madras*; and also in the *India company's* cinnamon plantation: and it was likewise applied with equal success to the fruit-trees of the country.

Besides these, there are many satisfactory and wonderful instances of *improvement to trees and fruits* by the application of the *composition*.

HEADING-DOWN.

FOR the information of persons who are but little acquainted with *practical gardening*, Mr. Forsyth gives the following explanation of what is called *Heading-down* :

When *young trees* are *planted out from the nursery* as soon as they *begin to break* in the spring, they are *cut down* to three or four eyes, according to their strength, to furnish them with *bearing wood* : if this were not done, they would run up in long naked branches, and would not produce one quarter of the fruit which they do when this operation is properly performed. The same holds good in heading all kinds of old trees.

An opinion prevails (especially amongst *apple-tree cultivators*) that trees never bear well after being *headed-down*. It may be so sometimes, when trees are improperly headed-down, *all at once*, by

giving a sudden check to the sap. But, if *heading* were done *gradually* ; that is, if *every other branch* all over the tree were headed at a proper length, cutting as near to those parts where the shoots appear, as possible, in *February* or *March*, or even as late as *May*, in the course of the summer they would throw out fine long shoots. These should not be shortened the *first year*, unless it be a few to *fill up* the head of the tree with *bearing wood* ; and that should be in the following *spring* ; cutting them to six or eight inches in length, according to their strength. In the next spring after the first branches are headed, the remaining old branches may be cut out ; and these will soon *fill the head* of the tree with fine *bearing wood*. In three years, trees so headed will produce a much *greater quantity* of *fruit*, and of *better quality* than they did before the operation was performed.

Heading-down Orange-trees.

Just as Mr. Forsyth's manuscript of his Treatise was going to the press, he was informed by the late *Portuguese Ambassador* at London, that on his return to *Portugal* he had found the Orange-trees on the Prince of Brasil's plantations in a very *unhealthy* and *decayed* state ; and applied to Mr. Forsyth for

some of the *composition*, and a copy of his pamphlet on the diseases, &c. in fruit and forest trees, that he might make trials of the remedy on the trees of that country. Mr. Forsyth sent him a cask of the *composition*, with directions for preparing the trees and laying it on.

He advises, that when it is found necessary to *head-down Orange-trees*, they be not cut quite down *to the stem* ; but to leave two or three inches of the branches, some more, some less ; always remembering to cut *near to a joint*, and in such a manner as to *form a handsome head* ; and to apply the *composition* immediately. In doing this, however, he adds, it will be necessary to leave a few young shoots to draw up the sap. If the trees are infected with insects, the *stems* must be *washed with soap-suds and urine*, and well *scrubbed* with a hard brush.

Mr. Forsyth informs us, he always *leaves three different years branches* on apple-trees, when the *first shoot*, d, is cut off at e, (see the pl. VI. fig. 2.) It is to be observed, the next shoot, f, will be full of fruit-buds, if it has not been shortened ; when it *begins to grow weak*, cut it off at g. The next cutting must be at i, when the branch h is tired of

bearing. Proceed thus all over the tree with care and attention, and it will soon be perceived the advantage of this method of pruning above the common mode ; for by it the trees may be kept in a constant state of bearing, which, if left to nature, would only produce a crop of fruit once in two or three years. Always remember, when the shoot that has done bearing is cut off, to *apply the composition immediately*, and to rub off the shoots where they are too numerous.

The best time, he says, for pruning apple-trees is April or May, *after* the peaches, nectarines and cherries are pruned.

The *small* shoots *crossing* each other should be cut off ; leaving the strongest to fill up the tree and make a fine handsome head.

The apple-trees chosen from the nursery, as well as the apricot and peach-trees, should have *strong, straight*, and *clear stems*.

Speaking, as it seems, rather of *dwarf trees* or trees in borders, he says, the same directions for *heading* must be observed, according to the season

and the time of the buds breaking forth, leaving the number according to the strength of each tree ; cutting as close as possible to the *top bud*, that the leading shoot may more easily cover the wound ; and constantly observing to rub off all the buds that come by the side of the leading shoot, which would otherwise rob it of its nourishment and strength, and so prevent it from making a fine leader. (See pl. VI. fig. 1.) Remember, he says, also to cut it annually to the length of from nine to eighteen inches, according to its strength, till the tree has got to that height to which you would have it run, and according to the extent of the ground ; which *height* may be from *eight to twelve feet*. By these means, the trees will throw out horizontal branches on every side, and soon *form handsome heads for dwarfs*.

He advises that *dwarf-trees* be not suffered to run higher than twelve feet. From eight to twelve is a convenient height. If allowed to run higher, they will become naked at bottom, the fruit will be liable to be blown down, and the tops broken by high winds.

A GREAT LESSON IN RAISING OAKS, &c.

According to Mr. Forsyth:

WHO says, it is a generally received opinion, that when an *oak* loses its *tap-root* in transplanting, it never produces another. But this he thus refutes. He *transplanted* a bed of oak-plants into a fresh bed, *cutting the tap-roots* near to some of the small side roots or fibres shooting from them. In the *second* year after, he *headed one half of the plants down*, and left the other *half to nature*. In the *first season*, those *headed-down* made *shoots six feet long*, and completely covered the tops of the old stems, leaving only a faint cicatrix; and had produced *new tap-roots* upwards of two and a half feet long. One of these trees he left at the Revenue-office to shew the *advantage of transplanting* and *heading-down* young *oaks*, when done in a proper manner; of which he also gives directions for *Chestnuts*. See p. 70.

By this method of treating the plants, the oaks, &c. will grow *more in one year than in six* when treated in the common way.

The *other half, not headed down*, grow not one fourth the size of those headed. One of the *headed-down* is *eighteen feet high* ; and, six inches from the ground, measures *fifteen inches in circumference* : at three feet from the ground, *ten inches* ; and at six feet, nine and a half inches : when one of the largest of those *not headed-down*, measures only *five and a half feet high*, and *three and three quarters inches in circumference*, at six inches from the ground. This is a convincing proof that *transplanting and heading-down oaks* is the most successful and advantageous way of treating them ; and by it they are sooner out of danger from cattle, as well as from vermin so frequently injurious to young trees.

Of *Oak-trees*, it is further to be observed, from Mr. *Forsyth's Treatise*, that where they had received very considerable damage from various accidents, blows, bruises, cutting deep letters, rubbing off the bark by the ends of rollers, cart-wheels, and mutilated branches or limbs, a perfect cure has been made, and sound timber produced, through his applications.

NOTES

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NOTES

ON

FRUITS AND AMERICAN GARDENING;

WITH

DESIGNS FOR PROMOTING THE RIPENING OF
FRUITS, AND SECURING THEM AS
FAMILY COMFORTS:

AND FURTHER,

OF ECONOMICAL PRINCIPLES IN BUILDING
FARMERS' HABITATIONS, &c.

BY AN AMERICAN FARMER.

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NOTES, &c.

A FARMER is not made by books ; but books may assist a farmer, in giving him information of successful practices by other farmers in other countries or places, which he cannot but by books know, limited in his inquiries to the little occurrences of his neighbours. *Books* will entertain a farmer with conversations on the practices of other farmers, and will inform him how far such practices have proved successful and advantageous, or how far they failed--and *why* they failed. One man may profit of the failure or mistake of another, and often does—The design has been good and promising, and the cause of the failure may thereafter be avoided, and the design be rendered successful.

Mr. *Forsyth's* treatise on the culture and management of trees, fruits, and gardening, ought

to be well attended to by the farmers of *America*, as it contains accounts of important discoveries, interesting to country families, and is founded on very numerous and extensive instances of successful practice.

For disclosing the fruits of his experience, Mr. *Forsyth* received from his government £4000 sterling money. The world also receives the benefit of his communications, especially in making and applying his *composition* ; and with it much other useful knowledge and instruction respecting trees, fruits and gardening, the price of the £4000 ; and the *world* is indebted also to Mr. *Forsyth* for it.

It is in full proof, from the instances of his experience, and the efficacy of his applications and management, that all fruit-bearing trees and vines are greatly improved in their properties of giving much *more* and far *better* fruit than in common practice is produced : the difference, on comparing them, is astonishing !

Of all the discoveries made public by Mr. *Forsyth*, the *heading-down*, *training* and *pruning* in

his very judicious methods, are the most important and satisfactory, including the application of his *composition*, *washes*, and *powder* ! Upon these communications Mr. *Forsyth* has a great deal to value himself, Look to the neighbouring *unheaded*, *unpruned*, or injudiciously trained fruit-trees and orchards—how inferior, scrubby and mean, the trees and the fruit !

Heading-down, training and pruning are practised by many people in their own *some-how way* ; which together may be denominated the common method : but how inferior, and how void of proofs of its having any extraordinary good effect ! Yet it may be of some advantage, generally, more than if no attempt was made to improve the trees and fruit, by the few country people who shew some endeavour to improve. So by chance the editor succeeded in heading-down and trimming a number of peach-trees, without having then heard the expression of *heading-down*. He had been told it was advantageous to *trim* and *thin* young trees when planted out. These trees grew and produced fruit to admiration. But what is all the *random pruning in America*, compared with Mr. *Forsyth's* now well-known method, so superior to all ever before practised ?

In general, the *American air and climate* appear well adapted for yielding the *best of fruits*, as well orchard as garden kinds. *Strawberries*, *currants* and *raspberries* are very sure and perfect crops. *Gooseberries* are not such certain or perfect productions ; unless it may be in the cooler, more northern parts : but yet they answer culinary purposes, and bottle well. This is with scarcely any attention to their cultivation.

Cherries in *America* would abound and be in great variety, very perfect, if some attention to them was observed : but as it is with so little done for them, they are a common, and rather a mean fruit. The sorts preferred in country places seem to be the thick, tough, indegestible sorts, which are now and then the cause of sudden death in people who make too free in eating them.

Cherries are chiefly applied to *culinary purposes*, and for improving brandy into what is called *cherry brandy* ; which is a considerable article, much noticed in *Hamburgh*, in *Europe*. It is imported from thence into some places in *America*.

Apricots come when there is a scarcity of other ripe fruits ; which makes them more desirable

than otherwise they would be. In the green state, they make an agreeable tart. In ground dug or stirred about the trees, as in gardens, they are apt to drop their fruit without ripening it.

Peaches are in some variety, and ripen to great perfection in the middle and southern states ; as with but a little attention they would in the more northern states of America. It is a fruit that is so natural to the country of these states, that they are applied as *food to hogs*, also in making *brandy*, and for *culinary purposes*. They are *in succession*, one sort coming after another, from *July* to *November*. In some of the states, *kilns* are erected for drying and curing apples, pears, peaches, and other fruits in great quantities ; where pies are made into mountains of crust, thick, essential, and cheap ; and given to hirelings, as an agreeable *food for all labouring people* in the country, and which needs but little or no sugar. The *dried fruit* is packed in casks for *family use* ; and is sometimes exported as *merchandise*. They are generally divided into *clear-stone* and *cling-stone peaches*. The *cling-stone* sorts are, in *France*, called *pavies*. In a list of thirty-nine choice sorts of peaches, given by Mr. Forsyth, only six are received by the

French as *pavies* or cling-stones ; and, it seems, in France and England the clear-stone sort is preferred at their tables.

But of all peaches, perhaps of all fruits, there is none equal in flavor to the American *Heath Peach*, a cling-stone. It is large, weighing near a pound in common : with but a moderate attention, the editor believes, they would very generally weigh a full pound. It is backward in ripening northward of the Susquehanna ; and is one of the last sort that ripens ; many weigh a full pound.—Peachley's form of a vinery would perfect the ripening, and secure the fruit from thieves.

Within the states of America, *clear-stone* peaches are preferred for food to hogs, and for making brandy ; perhaps also to be eaten in country families, with milk ; but the cling-stone sorts are preferred when of a good sort, well ripened, to be eaten as fruit undressed.

It is a common fault, after having planted out an *orchard* of peach-trees, to leave the trees to shift for themselves and travel down with old time, with scarcely any culture or attention ; and

the trees are taken from the nursery, where they had become full grown, crowded and stunted, so as to be now unfit for giving good fruit when transplanted : and they are left to themselves, without any training or pruning ; and heading-down is scarcely thought of, if known : in consequence, the fruit they yield is mean, and the orchard in the end is given up.

Nectarines scarcely ever ripen in the parts of America where the editor has been. An insect punctures the green fruit, and *gum* flows from it, till the fruit drops without ripening.

Every American farm has some sort of an *apple orchard*. The fruit is of various sorts of apples, and formerly gave much *cider* ; and *store apples* abounded. Now, the trees and entire orchards become daily more mean, and there is a great scarcity of *cider* ; but few *keeping-apples*, and those knotty, dry and insipid. There is not the attention to *orchards* that has been. *West-India spirit* and *French brandy* abound in the *shops* ; and we wear out the strength of our lands in scuffling for corn, of all sorts, to be sold to the shopkeepers, who furnish us very readily with exotic *spirit* and *brandy*. The

orchard is no longer *manured*: instead of it, various *corns*—oats, barley, rye, and even Indian corn and wheat are sown and reaped in the *orchard*, on ground not half dressed or cultivated. Moreover, the *orchards* are now left open to powerful *storms*, to which they are exposed from the general clearing of the country, and particularly from clearing away the neighbouring woods that had sheltered the orchards. Further, *pruning and training fruit-trees* are less understood and less attempted than formerly.—*Mighty rum*, and *mighty brandy*, divert better attentions.

Pears in America are only from some one or two trees in the farmer's apple-orchard or garden ; merely for the fruit eaten, or for preserves or present culinary purposes. *Perry* is scarcely known.

A few *quinces*, for preserves, are in a corner of the American apple-orchard or garden. The editor had a row of *dwarf pear-trees* grafted on *quince stocks*. They were chiefly the small round *sugar pear*: the fruit abundant and good. The trees about four or five feet high.

The *Vine* is quite natural to America. This, with the *plum* tribe, the editor propagated in one of the middle states. There however is very little attention observed towards the *plum*; though they generally thrive well. *Damisons* are preserved for making tarts.

Little attention is had to *Nuts*. The *walnut* of Europe, and the Spanish *chesnut*, would be worth cultivating, as well for the *timber* as the *nuts*. Although the chesnut is bad as *fuel*, yet *staves* of chesnut, for wine casks, are equal, if not superior to oak. In Italy it is much used for wine casks. The *chesnut* is also excellent house timber in beams, &c. The liquor of pickled walnuts is greatly used in sauces.

Formerly, the early settled plantations of the more wealthy emigrants from *England*, abounded in large spreading *walnut-trees*, of the European kind. In some places were entire rows of them. At this time, scarcely any such rows of walnut-trees, indeed even of solitary straggling bearing trees are to be seen, in the states where they had abounded. There is a fashion in these as in other matters. The early wealthy planters from England introduced *walnut-trees* about their houses—their descendants have

given them up. Cabinet-makers have rooted and sawed up all the noble blocks of curled veiny remains of noble walnut-trees—and the trees are not renewed. It is no longer a tree noticed. In a word, very generally *fruit* is shamefully neglected by the *American farmers*. They *plant*—and they *neglect*! Yet we sow wheat—it buys us rum, brandy and spirits, at the expence of an entire impoverishment of our lands.

OF HABITATIONS IN THE COUNTRY.

IT is proper that they be adapted to the employments and manner of living, suitable to the farmer's circumstances, and what is genuine country life. It is adviseable not to copy closely, for *country life*, from the fashions, taste, or excesses of *city life*: there must be a discreet difference preserved.

Whilst it is a fashion, convenient in *cities*, to finish their rooms with stampd or coloured *paper*, in the *country* this practice is less convenient or suitable. Workmen in the country are every where to be found, who can *whitewash* in the wholesome, neat, old way, every year, or as may be the occa-

sion ; when, to *paper* the country rooms as often as may be requisite, though seldomer than *white-washing*, it is difficult to procure *workmen*, if not also sometimes *materials*. This is one of the many inconveniences attending the introduction of *city* habits and fashions into rural life ; where the neat and convenient country usage of frequently *white-washing* and renewing the rooms and chambers is experienced, and has been always approved for its great *advantages* and admired *neatness* and *wholesomeness*.

Giving up the well adapted usage of *white-washing* country mansions, is followed by many disadvantageous changes in country economy, house-keeping, practices and employments ; especially by a too close attention to and observance of *city* pleasures.

Some particulars may be introduced into the country from city usages, which will be advantageous ; but the danger is great of their being attended or followed with depravities or inconveniences. There are not many that prove advantageous ; and it is adviseable that plain, yet cheerful *country life* do not give way too easily to city trifling, or things adapted only to city life, if adviseable in any condi-

tion. In the good old courses, *neatness, cleanliness, and modest becoming character and habits*, have heretofore been admired and emulated by the inhabitants of *cities* ; on the other hand, *country people* too closely and too largely followed the *city taste* ; which ushered them into city extravagances and follies.

Among other improprieties, there is a great, absurd and disadvantageous introduction, in *country houses*, of *plank floors* on joists, and a giving up the more *natural, wholesome, cheap, solid and lasting earthen and brick floors*, for the *city* choice of wooden floors over an unwholesome, close, stagnant air.

In the annexed plate is designed a *country habitation*, with its first or basement story on an earthen or brick floor, raised only six or eight inches, with earth, on the common level of the ground. *Farmers* in Europe, worth scores of thousands of pounds in money, have *houses, where they reside on their farms*, so built and so floored, because of its being sufficient, proper, wholesome and convenient ; and they find great advantage from their *two kitchens*, one of them, clean as a parlour, is every thing to the good house-wife and her family. But here in

America, how common has it become for our *farmers* to imitate city modes and practices, however unsuitable to the peculiar state of country affairs. The proud, perhaps really poor *city resident*, however he bustles in the *banks of paper-means of gambling*, builds fine houses, indeed house upon house, called *stories* ; for which he has the pretence of a *want of ground* in towns ; and the *American* dashing imitative farmer builds in like shewy manner, although he is not stinted in ground to build on ; he must have his flight of steps to pass to and from his house, by one or other of his family, a hundred times in a day—then another flight shews the stranger, visiting, rooms *empty*, if not unfinished, over rooms that ought to be under domestic employments.

The farmer's house (having only one floor or story) has no cellar under it. The *floor* of it is *brick*. For visitors, there are the two little front *parlours* ; of which, one may occasionally have a bed, or very full matrass. A middle room, 12 by 12, is the *lobby*, and for the *stair-case*. The two back rooms, 18 by 18, are *family rooms*. Up stairs are *five bed-rooms* and a *landing*, 12 by 12. A *cel-*

lar is under the traveller's detached lodging ; which is a house, 16 by 16, near or adjoining the mansion.

The farmer's house of city stories on stories, however shewy or not, outside, has less *area*, and less of *convenience*, though much more *wall*, than the humble house of one floor or story. Its two rooms, 20 by 20, and a passage 20 by 10, are all that are in the first story, below. Above, in the second story, are rooms too inconvenient to be of much use : they are two *bed chambers* and a *landing* of the stairs : in the roof are four *bed-chambers*, 14 by 12 1-2, and a *landing*.

The editor has been well entertained in a house which had but one floor (no upstairs), divided into five rooms, 18 feet square ; the middle of them was the summer room and the lobby ; another was a winter and dining room, " parlour and all" ; the three others were bed-chambers, having fire-places, and very completely furnished. The two first occupiers of it were great tobacco planters and merchants, owning shipping : two others were mere planters. It was a house of great entertainment—and yet it had but the one floor—not a room upstairs—no upstairs—and but one fifth of its area was cellar. A shed room had been added for a nursery.

In comparing the walls of the farmer's two above houses, those of the *modern*, or with two stories, are more than twice, or twice twenty-seven times more in *quantity* and *expende* than the *single story* house ; and moreover, the single story house has more of *employed rooms* and *conveniences* than the farmer's modern country house of two stories !

OF GARDENS IN AMERICA.

IS it presumption to say, that the *houses* on a farm, entitled to immediate attention, and that next to the *mansion* ought to be built, are what will *shelter* the farmer's *beasts* of the place ? and that the *farm-yard* is of more consideration than the *garden* ; though this is of great value to every family, especially to the *farmer's*.

Country gardens, in *America*, are usually *close to the mansion* ; and the *farm-yard*, when the farmer has any, is a considerable distance from the *mansion* ; perhaps partially to be seen from it. It may even be said, that the *garden* is but of a secondary consideration to the *farm-yard*, and ought to give way to it. Then, as it is elsewhere said, it is ad-

vantageous to have the *farm-yard*, and all the work and employment in it, within view from the mansion, as a check on the idleness and misconduct of *labourers* and *herdsmen*. The *garden* may be in the front, or on one of the sides of the dwelling house or of the farm-yard, as conveniently placed as circumstances will allow, not to be, especially, too near.

A *garden* laid out in *long beds*, admits of being advantageously ploughed, with a light plough drawn by a single horse, ass or mule. Mr. *Parkinson*, an English farmer of judgment and experience, lately in *America*, in conversations, gave satisfactory accounts of the excellence of cultivating gardens with light single-horse ploughs; and he approved of an *ass*, as being steady, sober and small, with which he ploughed his garden crops. If the garden is ploughed through its whole length, parallel with the middle great walk, it can, after being well dressed, have cross paths trod out, or otherwise as convenience demands.

Besides cultivating the garden sort of white peas in long garden beds as above, the editor is beholding, he thinks, to Mr. *Parkinson* for the

thought of tending *those peas* in *field-husbandry*; first dressing and preparing the field in fine condition, then sowing *broad-cast*; when the pea vines soon will cover the ground and smother many weeds. If in this case there should be but a partial crop of peas, though a full crop may be expected, yet the product in the straw, or haulm and grain, together would be very valuable to the farmer who shall know how to spend such acquisitions amongst *cattle and sheep*.

A country garden divides well, in the objects of its productions, into articles to be prepared in cookery *for the table*, into *pot-herbs* and *medicinal herbs*. These may be in separate pieces of ground. The *pot-herbs*, parsley, thyme, &c. are frequently wanted in *haste*; they may be nearest to the kitchen, &c. and let them abound. In saving seeds, lay out for ten times as much as it is thought will be wanted: many accidents, from storms, insects, seasons, &c. happen. Whatever may be above the wants of the garden, it will be a pleasure to supply neighbours with; and for ever there is a *certainty* of a sufficiency at home. Till the editor pursued this principle of economy respecting *seeds* and *fruits*, he seldom had

enough of either—and such are sore wants. Indeed, respecting *fruits* he would not be limited in quantity. Wants are due to careless, random, *half-spirited* attentions, or where there is no care at all.

The *garden fruit-trees* (distinct from orchard or straggling trees) may range along the interior or middle walks, and generally at some distance from the garden fence. The quantity designed to be many times more than the family may be supposed to want. Divide the placing fruit-trees distinctly as out-fruit, for servants and others close at home, and even. Some articles, precious family comforts, it is recommended to securely inclose in a *vinery* or the like cheap building, under lock and key ; which will scarcely require any expence of fuel. Here *grapes* may run up the rafters in serpentine order, whilst *dwarf trees* of the *beath peach*, &c. and also *figs*, may be in the beds. Of *figs*, observe Mr. Forsyth's excellent instructions in the pruning and cultivating them : no where are any equal to them, in print.

If a full-grown peach-tree, in America, will ripen 400 peaches, two such will give 800 family com-

forts.* Is it not worth the expence to secure such perfect fruit, if it were only for the *sick* of a family? In the season of peaches and grapes ripening, *intermittents* arrive ; and how excellent, says the good and knowing *Tissot*, is *sound ripe fruit* to the sick ; as indeed those who have had them in their sickness cannot but feelingly remember and vouch.

There can be little occasion for sheltering the *heath peach* from autumnal cold any where south of the Susquehanna. Yet the *fig*, a fine wholesome fruit, though not an American favourite, is highly

* A gentleman in *England*, lately, grew within *frames*, 14 feet long and 12 feet broad, the frames having three *slides of glass*, five *peach-trees*. At eight years old they ripened 261, 201, 220, 151, 152 peaches, in all 985. In *thinning*, there had been taken off 2020, which, added to the ripened 985, amount together to 3005. Medium, 600 a tree, failures included ; from which, off one third, would give to American peach-trees 400 a tree, in ripened fruit in the field. Then one tree in the back corners of two *peacheries*, would give of the noble *heath peach* 1600 ; besides *grapes* along the rafters. A *vinery* in *England* is usually 40 or 50 feet long, 9 feet wide, 3 feet high in front, 12 to 14 back : but the width in *America* may be 12 feet, the height in front 3 or 4 feet, and back, on the north wall, 12 or 13 feet.

esteemed in countries where it ripens, and is every where deemed *wholesome* and *delicious* when eaten ripe from the tree. The editor knows that at first his neighbours in America who disliked their flavor, soon were fond of them, and they are in truth a wholesome and a valuable fruit, as in his Maryland garden was often attested from experience.

The *shelters*, in nature of vineries, may be made good use of in America, for forwarding (not forcing them out of season) *cucumbers*, *melons*, *Lima beans*, *peppers*, &c.—sprouting the seeds in the vinery, and even letting the plants grow a while ; then move and plant them out in the garden beds or hills. First in the vinery, grow the seeds in little unglazed two-cent pots, or in paper, or willow *twigs*, or *straw*, make-shift temporary little baskets ; which are to be removed, pot and earth, and seeds or plants, without breaking their earth much, and all buried where to remain. Early radishes and sallads may also be here promoted.

The farmer cannot find it worth while to *force* fruits and plants out of season by the use of expensive *fires* and *attentions* ; but to *promote* their timely *ripening*, and *securing* choice fruits under lock

and key by affluent farmers would be profitable, and of great comfort to *sick people*, for whom they may have some thought.

Green-houses and *hot-houses* the husbandman had better avoid, as being expensive ; and are too far used in *preternaturally ripening* plants and fruits : but to his consideration is referred the *cheap vinery* or inclosure, for the purpose of *securing* some choice *grapes* and *figs*, and a little ripening some rather backward grapes, and perfecting the fig-trees for next year's bearing—as also may be ripened tender peaches, plums, and other subjects of family comfort, under lock and key, with very little or no *fire* ; but for some purposes with a portion of glass in sliding frames. Of which, see the plate.

The editor may have been too reserved in not speaking of some advantageous occurrences respecting his own gardening and management of fruit : but he will venture to relate an instance or two.

In some gardens in America, *green gages* scarcely yielded any fruit, or but badly : it was the case

of the gages in the editor's garden, till by grafting five green gages on five damison stocks, and at the same time, of the same grafts, one was grafted in the stock of a *Chickasaw plum*, growing near the damison stocks : in four or five years of the grafted trees bearing, the five damison grafted gages scarcely yielded a tenth of the fruit which the one *Chickasaw plum* grafted tree gave. Indeed, it was wonderful and curious to observe how like ropes of onions the gages grew along the twigs and small limbs of the *Chickasaw* grafted tree ; and another *Chickasaw plum*-stock, fifty yards from the other, was grafted with one of the same green gage cuttings as before, the year after the others were grafted, and bore fruit equally surprizingly as the former. It seems, then, that *Chickasaw plum*-stocks are excellent for grafting green gages on them. The *Chickasaw plum* is by some called mountain cherry. It is in nothing a cherry, but is red, and of the size of a cherry ; and in many particulars is like the common wild plum of the sea-coast.

In many parts of the country *almond-trees* gave no fruit. The tree, though hardy, was planted in the warmest parts of gardens ; where in spring

the blossom was the first out, of all trees ; and then the fruit was destroyed by subsequent frosts. The editor chose the coldest, most airy, exposed and clayey part of his garden, where he planted almonds. The trees bore the fruit to perfection in three years after planting the nuts—the large soft-shelled almond.

His *strawberry vines* were dressed every summer, after the fruit was gone ; the *runners* shortened, the ground stirred and cleaned from weeds, and a moderate portion of mild cow-dung added, best from the compost ; and every third year *the plants* renewed into fresh beds, the old ones left to give fruit as long as they proved worth attention. The improvement of the strawberries was great, in quantity and quality of the *fruit*. Respecting *raspberries* and the other garden fruits, consult and attend to Mr. *Forsyth's* treatment of them—how different they are in size, &c. when managed according to his book, the purport whereof is contained in the above *Epitome* ; and the method of culture was partly experienced by the editor.

The editor but little regarded the *breaking down* his *peach-trees*, or *their destruction by worms*—for

he aimed not at “enough,” but *very many times more than enough* ; whilst persons aiming at their *enough*, for ever wanted—as often as storms, worms, insects, or other accidents happened to a tree. When two or three of the editor’s trees were blown down, or the fruit of so many was destroyed, still there was of fruit more than enough ; and in every *autumn* he planted peach stones, regularly as *peas* are in the spring by other people. They were in some numbers, partly in borders where they might remain—others were transplanted, some even after shewing their fruit. Many were grubbed up. He preferred *Baker’s clear-stone July* peaches, the *Newingtons*, and a few others ; especially the latest and best, the large *heath* peach, ripe from *October* to *November*.—He was for ever planting *peach stones* and found not grubs, storms, &c. affecting them, to his detriment.

OF PLATE XIV. &c.

IN the plate are *plans* and *elevations* of two methods of building *farmers’ dwelling-houses*, drawn on the same scale, 30 feet in an inch.

Of the two, the *modern house* has 4200 feet of wall: the *old mode* compleats a house more convenient and of more room, with but 1850 feet of wall ; less than half the quantity of wall !

A small *out-house* of one room would be, for either house, very convenient for *strangers* to lodge in: and to have under it a *cellar* sufficient for a farmer's family. In the loft *over the bedroom* of this out-house may be straw matrasses for travelling poor people or servants to lodge on:—What an accumulation of advantages are here, cheaply concentrated ! Strangers cannot be always refused lodging; and it is not always with perfect safety that they are taken into the family house to lodge.

It may be best that there is no direct communication open between the mansion and the small lodging-house. On the same side of the mansion, may be other convenient houses: *milk-house*, &c. On the opposite side of the dwelling may be a passage to the *out kitchen* with *closets*, *poultry-yard* and *shelter*, &c. Over the passage and closets and out-kitchen may be *lodgings* for the family servants, to go up to by a ladder or stairs from

the passage. It is proper and necessary, especially in *country* houses, that accommodations, mostly or all together, be on the *ground-floor*. A frequent use of the rooms *upstairs* will naturally be avoided, as they are extremely inconvenient, but for bed-rooms. In towns a scarcity of ground obliges, a sore necessity, the building up *house upon house*, story upon story.

A clean small yard or two of close turf is highly useful to the country house-wife. The garden is more in sight and more likely to be attended to when in front of the dwelling, but at a proper distance : and the *road* to the house is better to be somewhat round-about on one side of the garden : than to have it a directly straight, dead view to the eye at the house.

The small rooms in the *old plan* may be *parlours* ; occasionally with a bed or matrass in one, easily removed, in the country way. The *lobby* has its uses, besides admitting the stair-case.

The first *floors* are of *brick* or *cement* in the old mode, upon the ground, raised six or eight inches with earth. The *wall* ought to be let three feet deep in the ground, against severe frosts.

Let nothing induce the having a *cock-loft* in either of the houses. They are dangerous receptacles of *combustibles*, and are often set fire to by carelessness. They ought to be so close that scarcely a cat can enter them. It will suffice that, after narrowing the area of the uppermost floor in the *old method*, because of the interference of the roof, there will remain an area of 36 feet by 24, to divide into *six rooms*, twelve feet square. The garret floor, in the *new method*, will divide into four rooms of 14 by 12 1-4 feet, of no very great demand in a country house, elevated as it would be.

Wind can make but little impression on the *low-built* house ; but what a powerful lever the *high house* would prove to be in *storms* ! In sweeping the chimnies and extinguishing fires, the preference is in favor of the *low house*. See more of mansions, p. 134.

The *vinery* may be only one, as is common, though some have two to advantage. The size for the above purposes in *America* may be 40 feet long, 12 broad, 12 or 13 high at the back wall, 3 or 4 at the front or south wall. The rafters

have sliding sashes, set with glass. This section is drawn by a scale of seven feet per inch.

Such a house would ripen and secure *heath peaches* in cold districts : the trees whereof might be *dwarfs*. *Fig-trees* would *perfect* their fruit, and *harden* their late grown wood. Also *Lima beans*, *cucumbers*, *melons*, *peppers*, &c. may here be aided in *perfecting* their *ripening* ; but not be forced *preternaturally*.

In England, the *flue* is in the *back wall* ; which can give plants only *one side* of its heat, very slowly and duly moderate ; when the flue in the *middle of the floor*, as here, gives *three sides*, or three fourths of its heat. On the top of this stove may be a bed of good rich earth, and small seeds sown in it ; or if seeds be sown in *small pots*, they might be *early sprouted*, and when frost is gone the pots and plants in them be disposed of in the garden ; as *Lima beans*, *peppers*, &c. Some seeds need only be sprouted in the *vinery*, and then sown at large.

The gable-end of a *vinery*, or rather a section of it, is given in pl. XIV. in which is seen a view

of the width of the *beds, paths, flue, &c.* It is drawn on a scale of *seven feet to an inch.* Further,

1. Beds raised a foot or so : width shewn, three and a half feet.

2. Width of the paths, eighteen inches.

3. The flue, nearly long as the vinery ; only leaving room to pass by the fire-place, from path to path.

4. Lower division of the glass frames.

5. Upper division of the same.

6. Covered with boards or shingles.

7. North wall of the garden and vinery.

8. Grape vines, planted outside ; and enter the vinery about two feet up the front or south wall. This wall may be chiefly glazed.

The contents of this XIVth plate are respectfully submitted to the consideration of the *farmers of America.* They will determine which of the two

mansions, or the *principles* on which they are designed, is to be preferred by real *farmers* ; and will consider of *American gardens* and *fruits*. Some general remarks are dispersed on these subjects ; and the American farmer entreated to consult Mr. *Forsyth's* treatise, very frequently : it containing the most valuable information that ever was made public *on trees and fruits* !

The editor also recommends to *landholders* who may be desirous of propagating plantations of *timber trees*, that they consult the third volume of *Anderson's* essays on agriculture. He especially is important in what he writes of the *larch-tree*, of Europe ; a tree so superior, in its uses, to all other trees, that the universal preference given to it by several nations has occasioned the extirpation of it in accessible places of countries where it formerly was to be had ; and where at this time little is to be found but what grows in inaccessible, mountainous places ; saving in Russia, a new country, where they still obtain of it for building ships of war at Archangel. American larch differs from this *pinus larix lin.*

Of late, millions of larch plants are annually raised, for sale, in *Scotland* ; and many trees are in gentlemen's grounds, grown to a full size, having been raised before this moment of the value of the wood being largely known. Of saving seeds, sowing them, and cultivating the trees, Mr. Anderson is full, pleasing, instructive, and satisfactory !

OF THE USEFULNESS OF BIRDS,

IN

DESTROYING INSECTS AND VERMIN COMMONLY INJURIOUS TO THE HUSBANDMAN AND GARDENERS.

DR. BARTON'S fragments of the natural history of Pennsylvania, points, with much justice and ingenuity, to the conduct of various birds, although of ill fame, from the early prejudices of youth, against appearances, rather than any actual facts.

Insects and vermin are food to the immense bird tribe : to which these insects are in due proportion to the essential wants of birds, as again numerous minuter beings are, with other aids of nature, to those, &c. All nature depends on its own laws for the support of its various subjects.

The attention of European writers to the common well-known fact, observed especially in the rural retreats of contemplative men, of animals preying on animals for their food, is very commendable. And often it has been observed, that whilst the woodpecker, for an instance, is busily engaged on the growing corn in digging with his beak and probing with his barbed tongue for the worm or insect which is equally active in destroying that corn for his own food, the hasty, inconsiderate spectator is outraged with the apprehension that the bird is a destroyer of the corn, when he actually is in the state of defending the corn for himself and the husbandman against the depredations of the insects.

The black bird and the crow are the two most desperate destroyers of the maiz corn ; on planting the grains in the crossings, they follow and take up the corn when it is even growing through the ground : but when the maiz is ripe, then it is that the crows seem to form their batallions, and pounce upon a whole field at a time, eating and destroying together entire fields ; as in one year they served a field of the editor : and so in armies they fly over the the country, till they choose a field to attack, and seemingly with a mighty command, one and all at

once scream aloud, and dash upon the selected corn-field, missing but few ears that are left ungathered by the farmers.

Pidgeons, as well wild as domestic, are charged with being great destroyers of grain. They do indeed eat much of the husbandman's seed corn, yet not so as to materially injure crops. They feed mostly on wild seeds of sour grasses, weeds, &c. But the farmer himself is extremely indiscreet in common, by suffering old breeds of tame pidgeons extending their colonies too largely and overrun all laws of economy.

Poultry also eat much of the farm corn; but the farmer eats both the poultry and the pidgeons, the rabbits, &c.—all to his satisfaction and support. Yet even the house-fly is not grudged his share of the most exquisite pine-apple cheese—nor the purest, most excellent Madeira wine.

“ Busy, curious, thirsty fly,
 “ Drink with me, and drink as I;
 “ Freely welcome to my cup,
 “ Could'st thou sip—and sip it up!——”

The grudgings, indeed, of certain selfish people, would withhold food from animals that in themselves

gratify the luxury of the condemner. Others, more reasonable and thoughtful, know, and are willing to admit that all animal life preys for its subsistence, and lawfully preys, on other beings and subjects, according to the laws of nature : the application whereof, as such, answers other wise purposes. The fish, the bird, the quadruped, all share in the life of their own kind—Yet not so of man ; to whom, and some other animals, they are unnatural as food to their own species, and so are withheld and forbidden.

The sweet, cheerful mocking birds are said to be enemies to us in eating our cherries and small fruit. Very little of these I am sure they consume. In paying some attention to them, it has been remarked that they are very particularly fond of spiders : if this be their principal food, together with other insects and worms, the epicure may not grudge him his food ; and even of the red-breast, so much more numerous, he robs the fruiter in proportion to their extensive numbers. They are indeed somewhat vexatious in the partiality they shew for the garden grape-vine, where they much abound, perhaps as much for the spiders, bugs and worms, if not more than for the grapes. But poor things they

must live, and we must not grudge a share of our labour for their support ; and from whence we acquire pleasing gaiety in the morning in the trees directly at our windows ; and then let us give them praise for their destruction of enemies, among worms and bugs, to our garden and field crops. Of all birds about a house, the most vexatious are the *water martin* ; which had better be called the *bee bird*, as it is for ever snapping up these industrious animals, full laden as they are returning to their hives. There is no such other enemy to bees.

But Dr. Barton has given so excellent an account of the habits and actions of birds in his fragments of the natural history of Pennsylvania, that a preference is due to it, for our present purposes ; and it is referred to as the most satisfactory respecting our present enquiries, as we have it in a European late publication as follows :

“ It may in the first place be observed” says Dr. Barton, “ that insects appear to be the first food of almost all the birds of our country. The more I have enquired, the more I have been convinced, that almost all birds live, in some measure, upon insects. Even those species which consume consi-

derable quantities of seeds, berries and fruit, also consume large quantities of insects.

“ The greater number of our smaller birds of the order of passerres, seem to demand our attention and protection. Some of them feed pretty entirely upon insects, and others upon mixed food—that is, insects and seeds. Many contribute to our pleasure by the melody of their notes. I believe the injury they do us is but small, compared to the good they render us.

“ The *muscicapa acadica* of Gmelin, is called in Pennsylvania the lesser or wood-pewe. This little bird builds in woods and in forests. After the young have left the nests, the parents conduct them to the gardens and habitations of men. Here the brood dwells in trees near the houses, where they are fed by the old birds with the common house-fly and other insects. The young ones are soon capable of obtaining their food in the same way. This species of *muscicapa* visits us in the spring, and commonly continues with us till late in September, when it retires southerly to winter.

“ The blue bird feeds principally, if not entirely, upon insects, both such as are flying and such as are reptile.

“ Most of our species of wood-pecker, appear very useful in destroying insects, particularly those which injure forest and orchard trees”—and such as infest and injure the corns whilst growing, especially the maiz or Indian corn. “ It is true, these birds are sometimes injurious to us, by eating some fine fruits; and therefore pains are taken to drive them from cherry-trees and Indian corn.—But, withal, they devour great numbers of injurious insects.

“ As a devourer of pernicious insects, one of the most useful birds is the house-wren. This little bird seems peculiarly fond of the society of man. From observing the usefulness of this bird in destroying insects, it has long been a custom in many parts of the country to fix a small box at the end of a pole, about houses, for it to build in. When the young are hatched, the parent birds feed them with insects. It is a curious fact, that a friend counted the number of times a pair of wrens came from their box and returned with

insects. He found it was performed from 40 to 60 times in an hour ; and in a particular hour they carried food 71 times. They were engaged in this business the greater part of the day. Taking the medium at 50 times in an hour (in the whole 12 hours) a single pair of these birds took from the cabbage, sallad, beans, peas, and other vegetables in the garden, six hundred insects per day.' This is supposing the old birds carried but one insect at a time, but the editor has seen them take and carry to the nest two at a time, and even, he believes, three.—

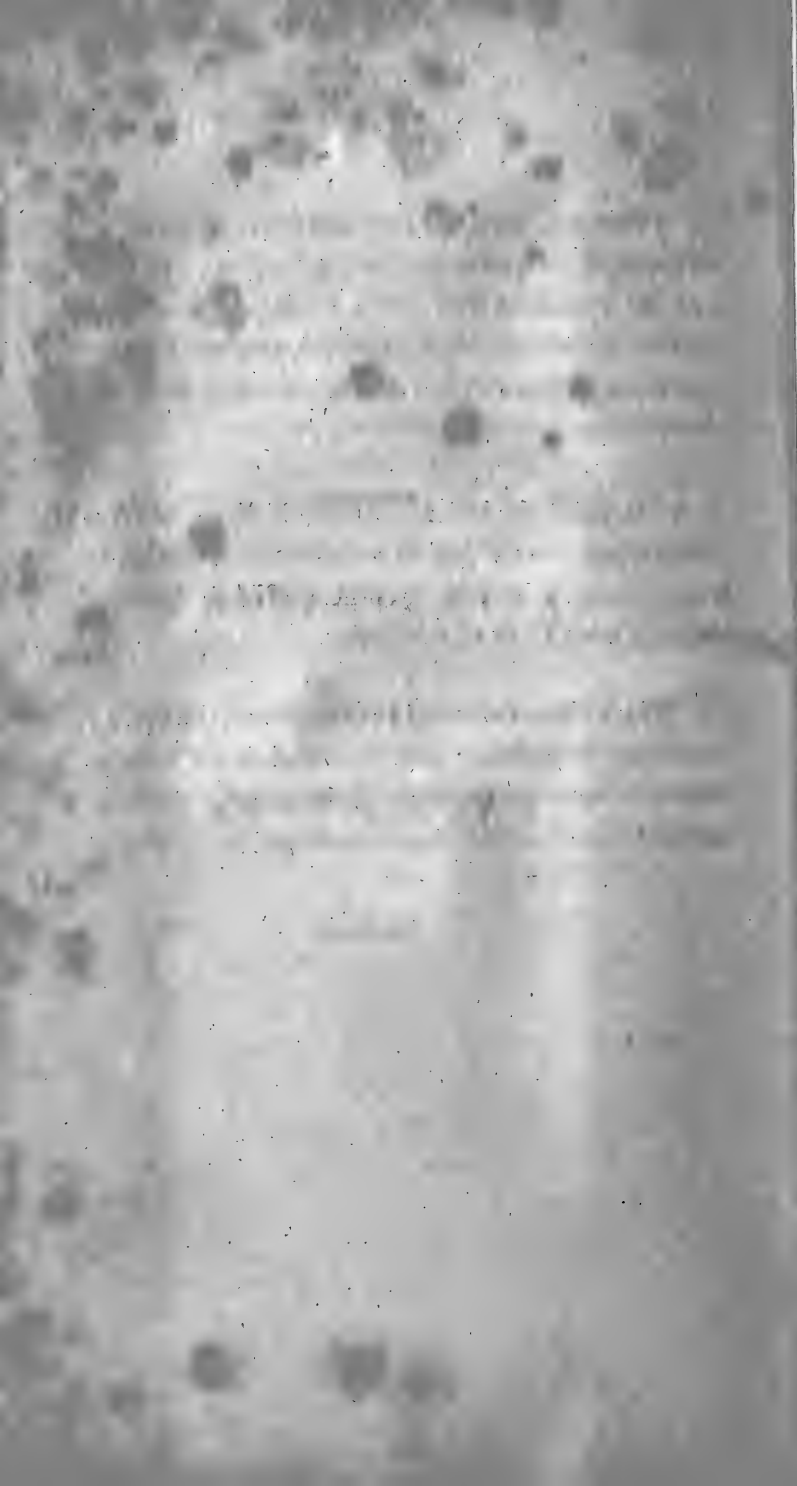
For preserving tobacco plants from worms and insects, at times, and on particular occasions, a whole plantation of negroes, men, women and children, and then again large flocks of turkies go through 10, 20, to 40 acres of plants, plant by plant, and take from them *daily* destructive worms and insects, and render that service at a great expence, which the wrens, wood-peckers, and other wild birds perform at no expence, unless the unreasonable husbandman would charge them heavily for sometimes partaking of the fruits of their labour.

“ Thus the esculent plants of a whole garden may perhaps be preserved from the depredations of different species of insects by 10 or 15 pair of these small birds; and moreover, they are a very agreeable companion to man, for their notes are pleasing.

“ Perhaps our storks, cranes and herons are as serviceable, if not more so to us, as the ibis were in devouring the reptiles of Egypt. In Holland at this time the storks go wild, protected by the government, from a sense of their usefulness in the above respect.

“ In Britain, the heron and other birds of the tribe protect the country against an excessive increase of frogs, toads, and other reptiles. North-America abounds with birds of this order.

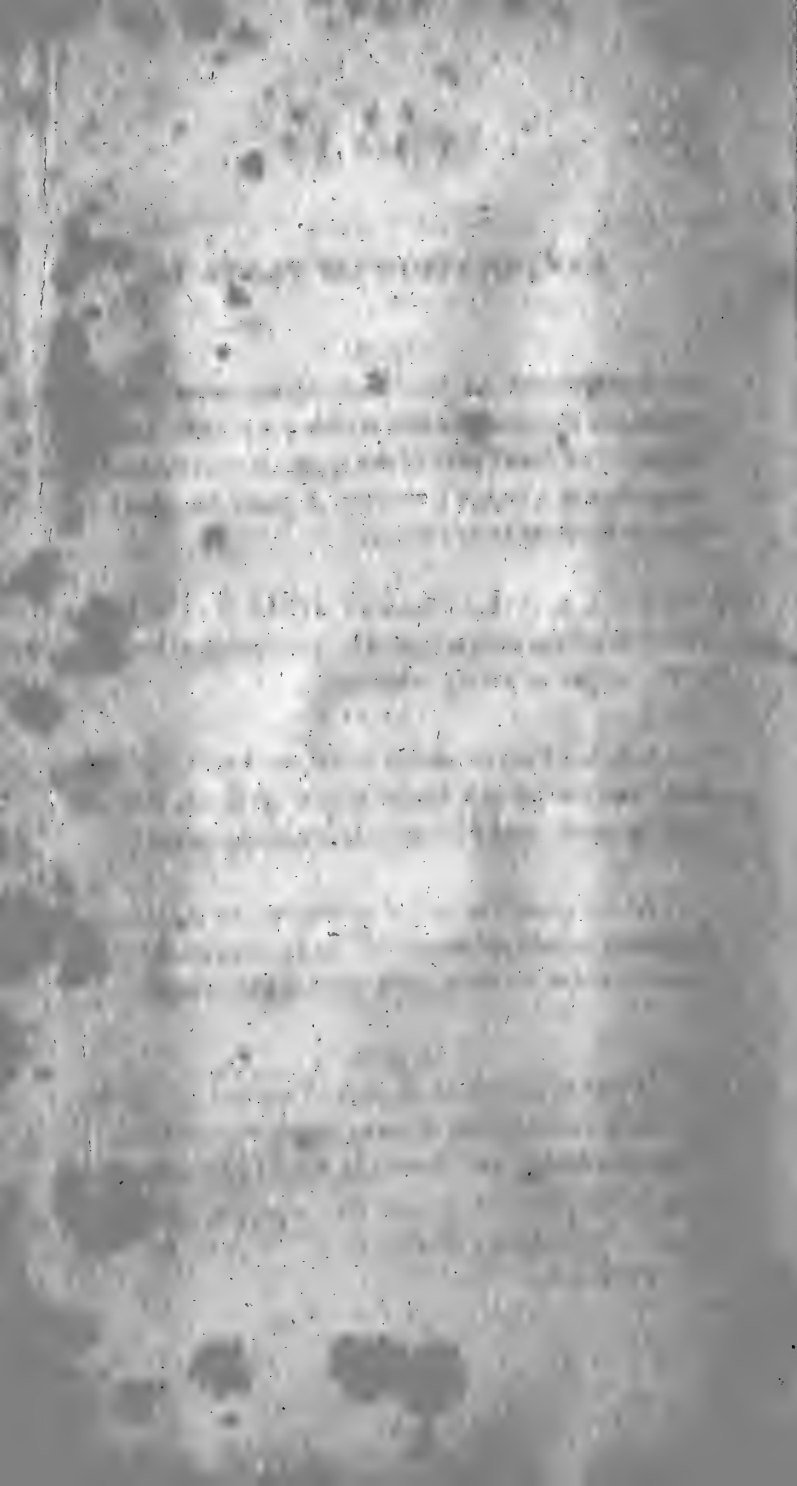
“ The vulture is useful in sweetening the air, by devouring all carrion ; and in Virginia the turkey-buzzard, *vultur aura*, is one of the most useful birds of this kind ; and is there protected by a law.”



EXPLANATIONS

OF THE

ENGRAVINGS.



EXPLANATION OF PLATE I.

Fig. 1.

REPRESENTS an old apricot-tree, after the last pruning in summer, in the fourth year after heading down. The lower part of the trunk is represented as covered with a rough bark, which must be pared off when it happens to be cankerous.

a, a, a, a. The cicatrices of the four different years' heading, which should be performed at the time of the winter or spring pruning.

b, b, b. Forked shoots which are laid in, in summer, and cut off at *b* in the winter pruning, that the leading shoots may be always left without forks.

As the small shoots *c, c, c*, from the stem, advance, the larger forked shoots should be cut out, as at *d, d, d*, to make room for them to be trained horizontally.

Fig. 2.

Is an old branch of an apricot trained up according to the old method, leaving above three-fourths of the wall naked. Such branches should be cut down as near to the place where the tree was first budded as possible, as at *c*, on purpose to fill the wall with fine new wood.

EXPLANATION OF PLATE II.

Fig. 1.

AN old hollow Green Gage Plum-Tree the second year after heading down. This tree was very much decayed, having only a few inches of sound bark ; many of the roots, being also rotten and decayed, were cut off, and an incision made at *a*, which produced a fresh root.

b. The first heading, close to a bud.

c, c. The new wood and bark growing over the hollow part *d*, which is covered with the composition.

e, e, &c. Where the second year's heading was performed.

f, f. Where the fore-right shoots are cut off during the winter or spring pruning.

g, g, g, &c. The fruit buds for next year, as they appear after the fore-right shoots are cut off, as at *f, f*.

Fig. 2.

A branch on a larger scale, to shew the manner of cutting those fore-right shoots which are full of fruit

buds. This should be done at *h, h*, but not till the fruit is set ; they afterwards form into dugs as *i, i*.

Fig. 3.

An old branch pruned in the common way, covered over with canker, and producing only small weak shoots, leaving the wall mostly naked.

EXPLANATION OF PLATE III.

Fig. 1.

AN old hollow peach-tree, after the last nailing in summer, which had been headed down at *a*, four years ago. The hollow is covered over with the composition, and now nearly filled up. The heading must always be done as near to a bud as possible.

b, b, &c. Where the forked branches are to be cut, when the small shoots *c, c, &c.* are far enough advanced, that these may be trained horizontally.

When a shoot has single fruit-buds to the top, as at *d*, it must not be shortened, but laid in at full length ; or, if not wanted, it must be cut clean out. See the 4to. edition, p. 53.

Fig. 2.

A branch on a larger scale.

e, e. Are double flower-buds, with wood-buds between them : The shoots should always be cut at such ; but never at a single flower-bud, as at *f* ; otherwise the shoot would die to the next wood-bud ; and, if the pruning were done in a careless manner, would endanger the whole shoot. Those above *f*, are all wood-buds. See 4to. edition, p. 32, 33, 34.

Fig. 3.

A branch of an old peach-tree pruned in the common way, which should be cut at *g*, and the young wood will soon cover the wall.

EXPLANATION OF PLATE IV.

Fig. 1.

AN old cherry-tree headed down at *c*. Before this its branches were covered with the gum and canker, as *Fig. 2.*

The fore-right shoots should be tucked in, as directed for pears ; and at the fall of the leaf, or in the month of February, they should be cut at *a* : These form the fruit-buds *b. b, &c.* all over the tree.

c, c, &c. The cicatrices where the leading shoot was headed in different seasons.

d, d. The composition applied where large limbs were cut off.

Fig. 2.

A branch of this tree before it was headed down.

e, e, &c. Branches injudiciously pruned in summer ; which brings on the death of the shoot, and afterwards the gum and canker on the tree.

f, f, &c. The gum and canker in the last stage, which corrodes the whole tree if not carefully extirpated.

EXPLANATION OF PLATE V.

AN old cherry-tree, restored from two or three inches of live bark, taken from the wall, and planted out as a dwarf standard : Now very fruitful.

a, a. The cicatrices where it was headed down the first and second time.

b. The hollow covered with the composition, and now nearly filled up with sound wood.

EXPLANATION OF PLATE VI.

Fig. 1.

An old cankered apple-tree headed down four years ago, now bearing great plenty of fine fruit.

a. Where it was first headed down.

b and c. Two wounds covered with the composition, and now nearly filled up with sound wood.

The part of the trunk below *a* shews the cankered state of the bark ; which rough cankered bark must always be pared off, otherwise it will infect the new.

Fig. 2.

A branch shewing the method of keeping a regular succession of bearing wood.

d. A branch, which has done bearing, to be cut at *e*, and which is succeeded by the branch *f*; when that also is tired of bearing, it is to be cut at *g*, and will be succeeded by the branch *h*; and when that also is worn out, it is to be cut off at *i*. By proceeding in this manner, you will always be able to keep a regular succession of fine bearing wood.

EXPLANATION OF PLATE VII.

THIS plate represents an old decayed pear-tree, with four stems, which was headed down, all but the branch *C*, and the young wood trained in the common way, or fan-fashion.

A, A, A. Young wood producing the fine large fruit *B*.

C. An old branch pruned in the common way, having large spurs standing out a foot or eighteen inches, and producing the diminutive, kernelly, and ill-flavoured fruit *D*, not fit to be eaten.

The two pears *B* and *D*, represented in the plate of their natural size, grew on the tree at the same time.

a, a, a, &c. Wounds in the stems of the tree, with the composition applied, as they appeared when the edges of the bark began to grow over them.

EXPLANATION OF PLATE VIII.

Fig. 1.

AN old decayed Beurre pear-tree headed down at *f*, and restored from one inch and a half of live bark.

a, a, a, &c. The fruit-buds for the present year.

b, b, b, &c. Those forming for next year.

c, c, &c. The foot stalks of the fruit of last year, on which are forming buds for bearing in the second year.

d, d, &c. The fore-right shoots as they appear before they are cut off at *e*, in the autumn or spring pruning.

d. The manner of tucking in the fore-right branches.

f, f, &c. Cicatrices of the different headings, which cause the leading shoot to produce horizontal shoots.

g, g. Large wounds, having the composition applied, healing up.

Fig. 2.

An old branch of the same tree before it was headed down, trained and pruned in the old way, with spurs standing out a foot, or a foot and a half, from the wall; and the rough bark, infested with a destructive insect, which is described and a method of cure given. See Plate IX. Fig. 3.

EXPLANATION OF PLATE IX.

Fig. 1.

AN old Bergamot Pear headed down at the cicatrix *a*, taken from the wall and planted out as a dwarf standard.

b. A wound, covered with the composition, where a large upright shoot was cut off, to give the leading shoot freedom to grow straight.

Fig. 2.

The different appearances of the insect so destructive to pear-trees.

This insect is inclosed in a case, and, when fixed on the leaf on which it feeds, appears as represented at *a*, *a*, *a*, which is about its natural size.

b. The case magnified.

c. The case, with the Insect in motion, magnified

d. The Insect magnified.

e. The Moth.

f. The Chrysalis.

g. The Chrysalis magnified.

Fig. 3.

The coccus which infests peach, nectarine, and pear-trees.

a, a, a. The insect, the natural size, on a branch of a pear-tree.

b, b, b. The same magnified.

EXPLANATION OF PLATE X.

a, a, a, &c. THE young bearing wood of a vine trained in a serpentine manner, with the buds for the present year appearing. These shoots are generally cut out in the winter pruning, as low as *c, c, c, &c.* to produce wood for next year.

The shoots *b, b, &c.* produce fruit in the usual manner, also young wood for the following year, which must not be topped, but only have the side shoots picked off. Two or three of the strongest young shoots from each of those *b, b, &c.* will be sufficient, and they must be laid in at full length.

EXPLANATION OF PLATE XI.

Fig. 1.

GRAFTING in the rind, shoulder-grafting, or crown-grafting.

a. The stock grafted.

b. The manner of raising the bark to receive the cion or graft.

c. The graft prepared for inserting.

Fig. 2.

Cleft-grafting, stock-grafting, or slit-grafting.

d. The stock grafted.

e. The stock prepared for receiving the graft.

f. The cion ready for inserting.

d, d, d. Different views of incisions made for the purpose of obtaining young wood.

e. A young shoot coming out at the lower part of the incision.

Fig. 3.

Whip-grafting, or tongue-grafting.

g. The stock grafted.

h. The stock prepared.

i. The graft prepared for inserting.

Fig. 4.

Inoculating or budding.

k. The manner of making the incision in the bark.

l. The bud inserted, and the bark laid over it.

m. A shoot shewing the manner of cutting off the buds.

n. A vessel with a little loam, covered with wet moss, so stick the lower end of the shoot in, to keep it moist till used.

o. A bud taken off and ready for inserting.

Fig. 5 and 6.

Inarching, or grafting by approach.

p. Grafting on a stock in a pot.

g. Grafting on a stock growing near the tree from which it is to be grafted on.

r, s. The shoot and stock prepared.

t, t. Two branches inarched where the natural ones had failed, now properly united with the body of the tree ; the lower parts being cut off.

u, u. Two branches lately inarched for the same purpose, and when properly united with the stem, are to be cut off at *u, u, u, u.*

w, x. The manner of preparing the stock and graft.

v. A natural shoot coming out where the branch was inarched the preceding year.

EXPLANATION OF PLATE XII.

THIS plate represents an old stunted oak, which was headed down about six years ago. At that time it was full of wounds and blemishes, now nearly healed.

a. The place where the tree was headed, afterwards covered with the composition.

b, b, b. Three young shoots produced fine heading; there were several others, which were cut down as they advanced in growth; the two remaining side ones are also to be cut down and only the middle one left, which will in time cover the wound *a*, and form a proper tree.

c, c, c. Remains of the old wounds, covered with the composition, and now almost healed up.

EXPLANATION OF PLATE XIII.

Fig. 1 & 2.

Two different views of a tool for cutting out the dead and decayed parts of hollow trees. It has two wooden handles which may be of any convenient length.

Fig. 3 & 4.

Two views of another tool, with one handle, for cutting out dead wood. This is made narrower than the former, and is to be used in places where *Fig. 1* cannot be admitted.

5. A triangular chisel, for cutting grooves or channels to carry off the water from the hollows of the trees.

6. A tool representing an adze on one side and a hatchet on the other.

7. A large chisel.

8. A large gouge.

9. A small saw, with double teeth, thin on the back, for cutting off small branches, &c.

10. A knife with a concave edge.

11. A tool in form of a sickle, without teeth. This is to scrape stems and branches of trees on the side next the wall.

12. A pruning-knife with a convex edge.

13. A tool in shape of a curry-comb for scraping moss, &c. off the stems and branches of trees: One of the scrapers has teeth; the other is plain. The back of this tool, and the edges of the scrapers, are a little concave.

14. A larger double-toothed saw for cutting off large branches.

15. A small pruning-knife with a convex edge.

16. A large chisel with a strong plate of iron screwed on upon the face of it, like a double iron for a plane, to prevent its running in too far where the tree is cross-grained.

N. B. These tools have handles of different lengths, to be used as occasion requires.

EXPLANATION OF PLATE XIV.

Fig. 1.

FARMERS' houses of residence are of various sizes and forms, suitable to the degree and circumstances of the occupier.—Fig 1 is the most humble of farmers' habitations, on the smallest farms; and is an excellent design for a cottage. The floor is best of brick or cement, or earth perfectly solid. The size 16 by 12 feet.

a, a. Dotted lines, shewing the width of area upstairs, 8 by 16: to form two rooms of 8 feet square.

Fig. 2.

This is a comfortable house for a farmer's family in common; and very convenient, without ostentation.—It admits of an entry by one or two steps—Its business is all done on the one ground floor: the rooms over head being solely as bed-chambers and store-rooms of family goods.—It admits of enlargement on

the ground, as may be for future occasions—Its chimnies are easily swept—Its single story gives little to the power of storms—A fire is easily conquered, being more within reach than when it breaks out on two-story houses. Into this most common farmer's habitation, you enter a lobby 12 by 12 feet; the stairs to bed-chambers and store-rooms, over it. On each hand of the lobby is a room also 12 by 12 feet, with a small corner chimney. The two back rooms, which are 18 by 18 feet, are *family* rooms of *employment*: they look back into the farm-yard. A door may be on the east and west sides. Best that there be little or no cellar under this habitation. If any cellar, let it be under one of the 12 feet rooms; but still better to be under a small out-house for a poor traveller's bed-room.—N. B. The two dotted lines shew where the sides of the chambers upstairs will extend to. When divided off, there will, for chambers and stores or closets, be six rooms of 12 feet square.—The whole of the ground floor may be laid *solid* with brick or cement; and this coloured or not at pleasure: but the *solid* floor is the *healthful floor*! ever and ever. Even the upper floor would be well laid with stout sawed laths, and then laid thick with a cement; which would protect against fire. . d, d. Doors.

Fig. 3.

This is taken from a house lately built in the state of Main by an English family; having only a ground

story, the floors of brick and earth. They are built on the principles of farm houses in the experienced old countries ; having never more than one story, with brick or cement floors, solid, that no stagnant, unwholesome air be admitted under them ; except a very small portion of cellar under the stairs, for containing family small beer, lard, &c. Bed-rooms, and closets or store-rooms may be over head, in the garret or second floor, as in No. 2.

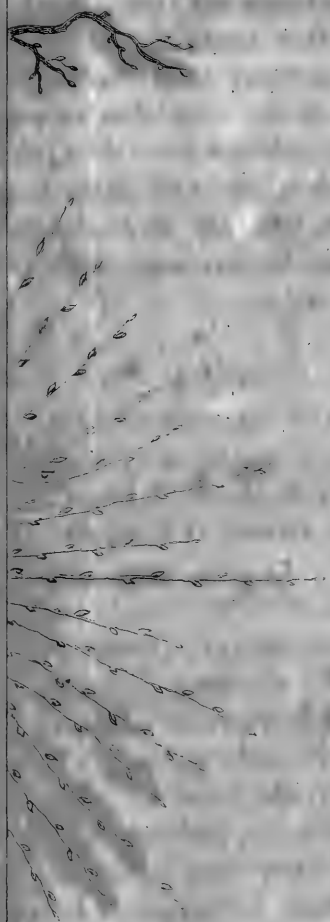
Fig. 4.

This and Fig. 3 were built nearly together by relations by marriage, and there need not be sought a more convenient and comfortable house than either of them, suitable to farmers of property. Upstairs, as No. 3.

Fig. 3. Enter a passage 10 by 25 feet to a. a store-room : b. a closet : c. childrens' bed-room : d. bed-room of master and mistress : e. closet : f. parlour, 15 by 22 feet : g. friends' bed-room, 15 by 19 : h. h. h. closets : i. kitchen, with cellar and chamber stairs : k. door into shed, 27 by 13, with fire-place and copper : a pump and sink ; door both ways :—Fig. 4. l. entry with closets for books, &c. on each side, 8 1-2 by 25 : m. north parlour, a beau-room, 22 by 18 1-2 : n. boys' bed-chamber and closet, 7 by 8 feet : o. girls' bed-chamber, 7 by 7 feet : p. master and mistress's room : q. q. closets : r. parlour, 16 by 20 : s. friends' bed-

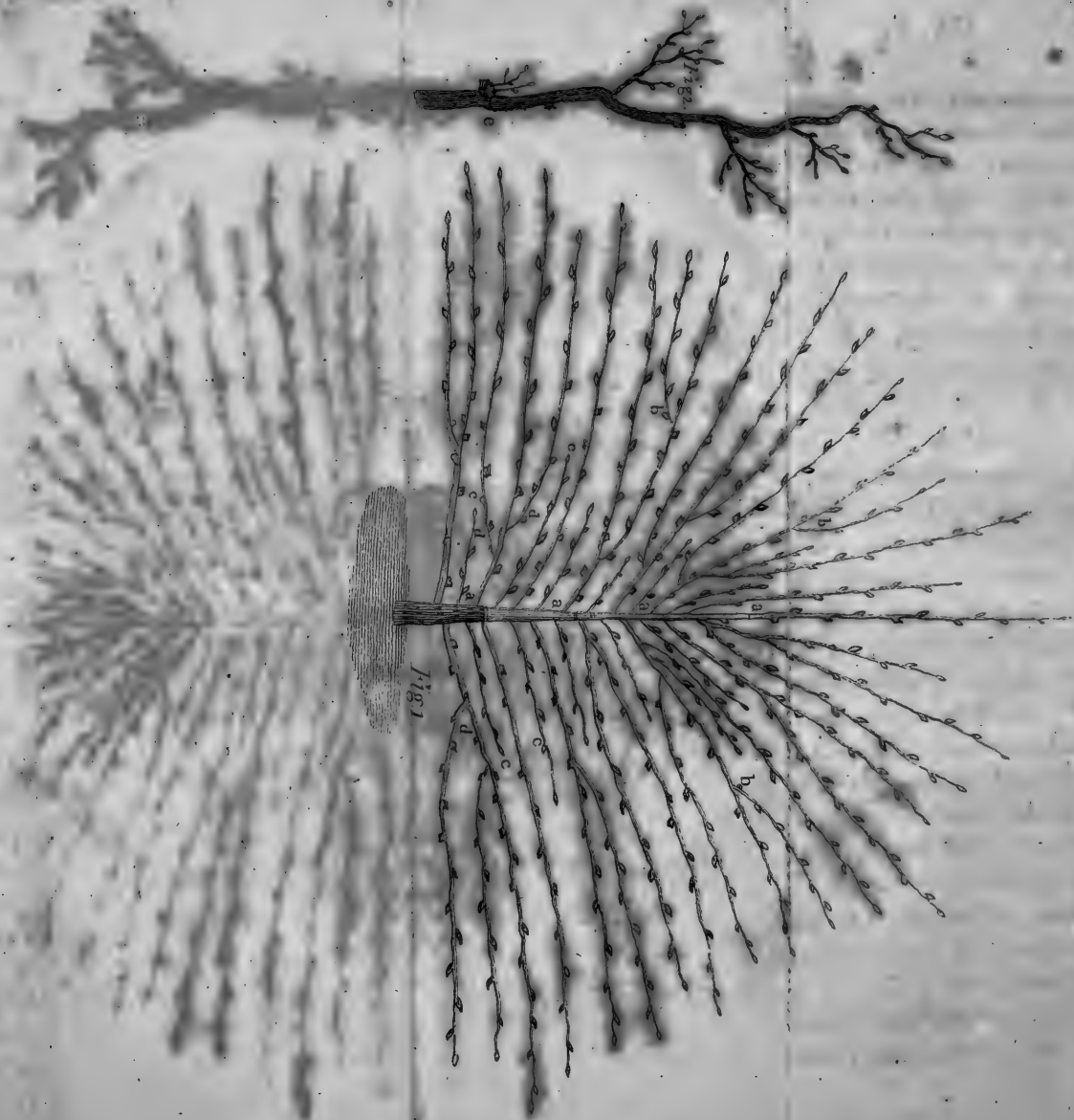
PLATE I.

NIPERICOLE.



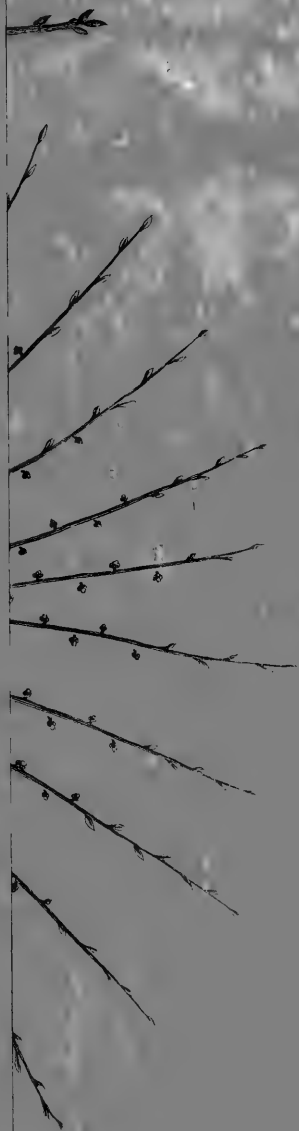
Plat. I.

APRICOT.

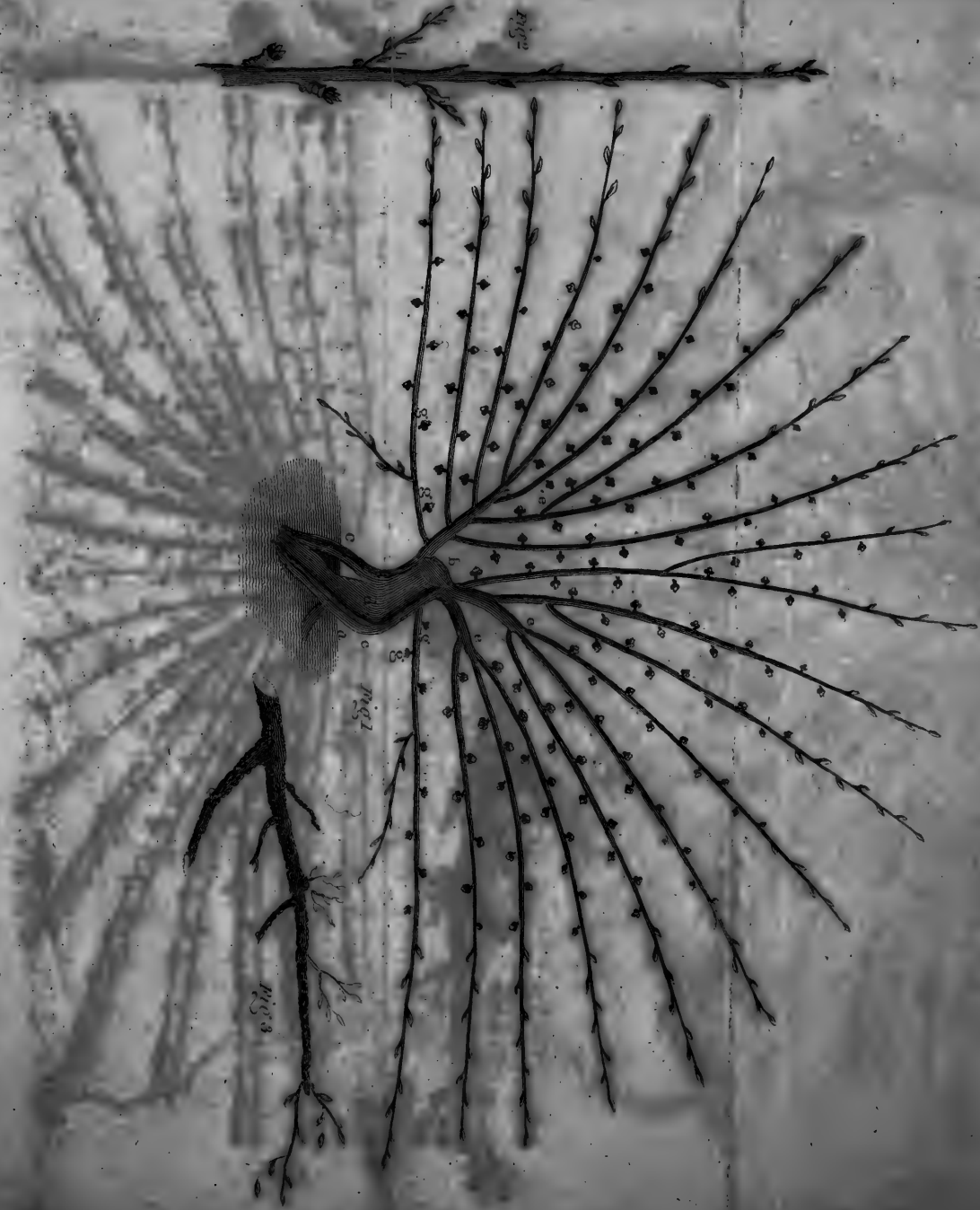




GREEN GABLE PLUMBERRY



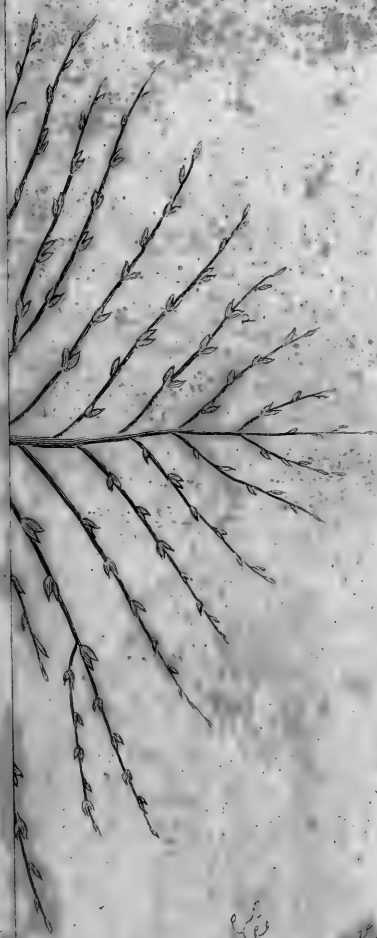
GREEN GAGE PLUM TREE







1762



PLANT

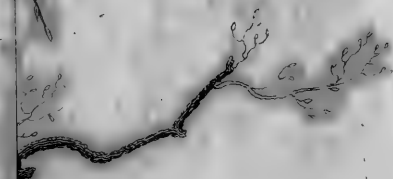
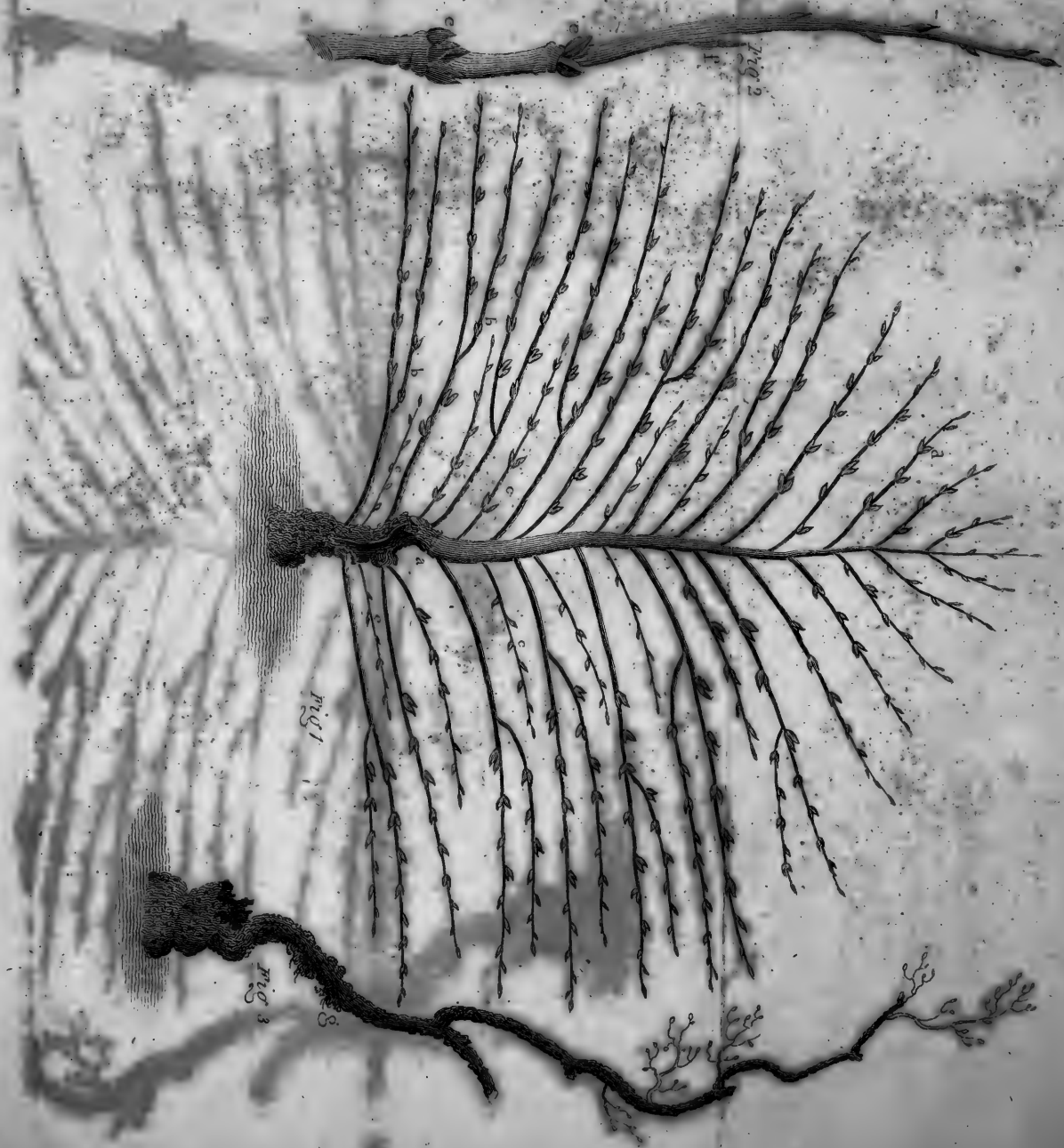


Plate III

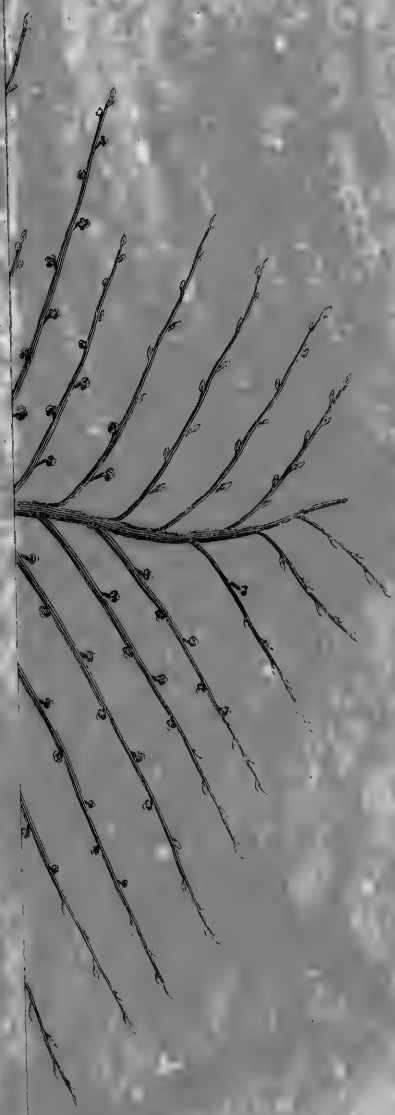




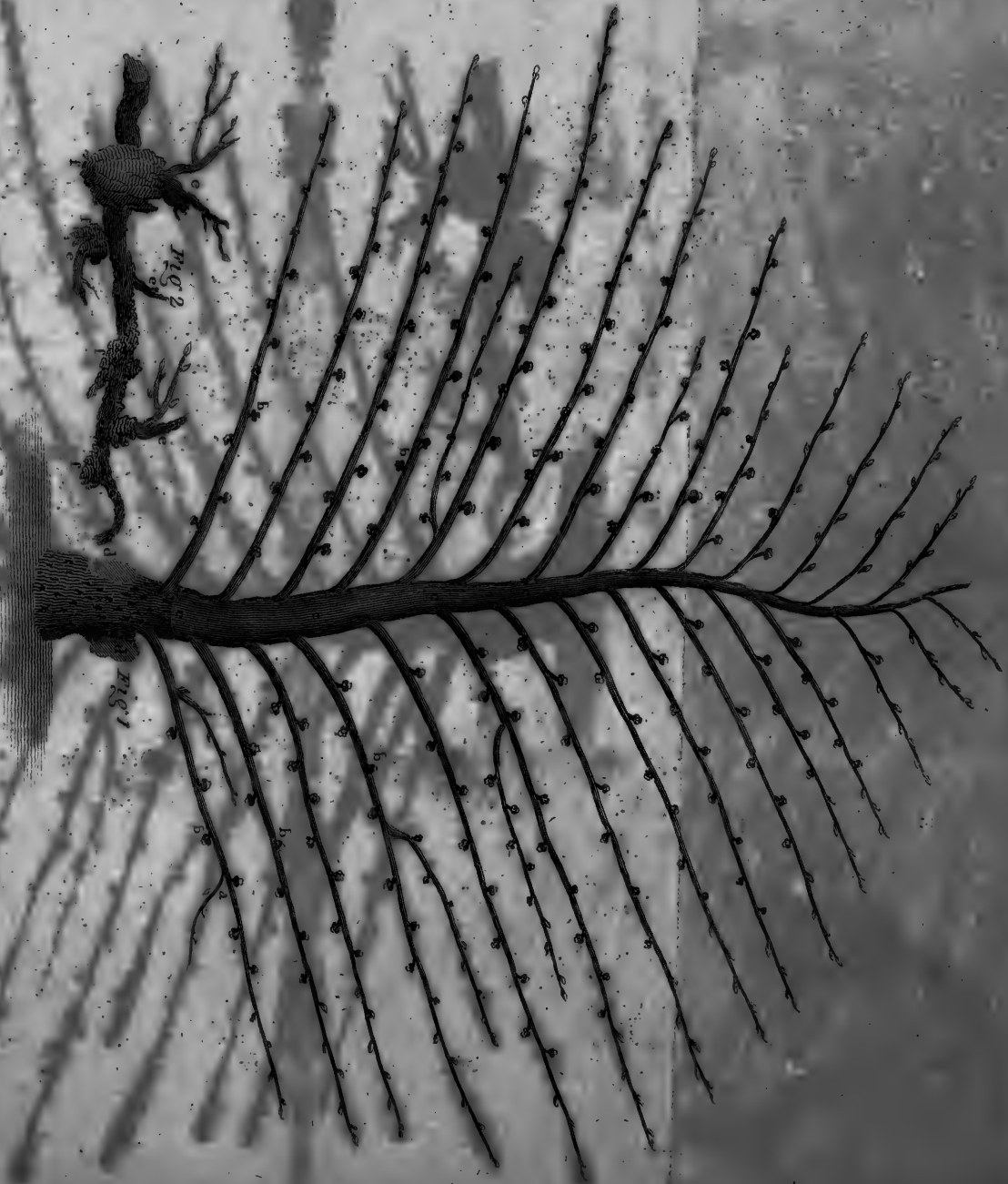


DOCKING CUTTING PLUMES

Plate IV









STANDARD CHERRY

Plate V

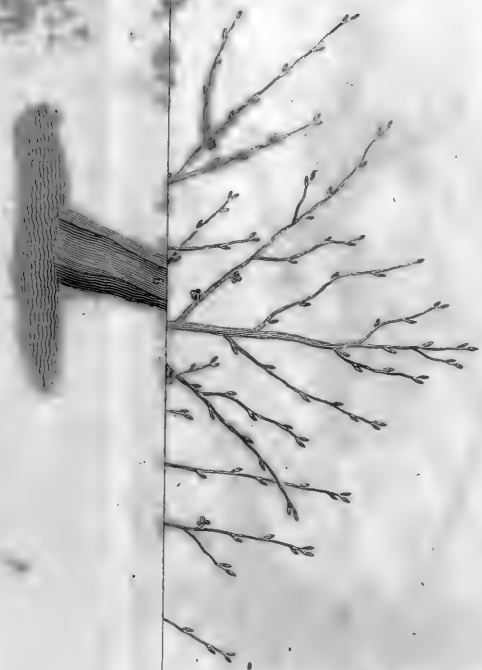
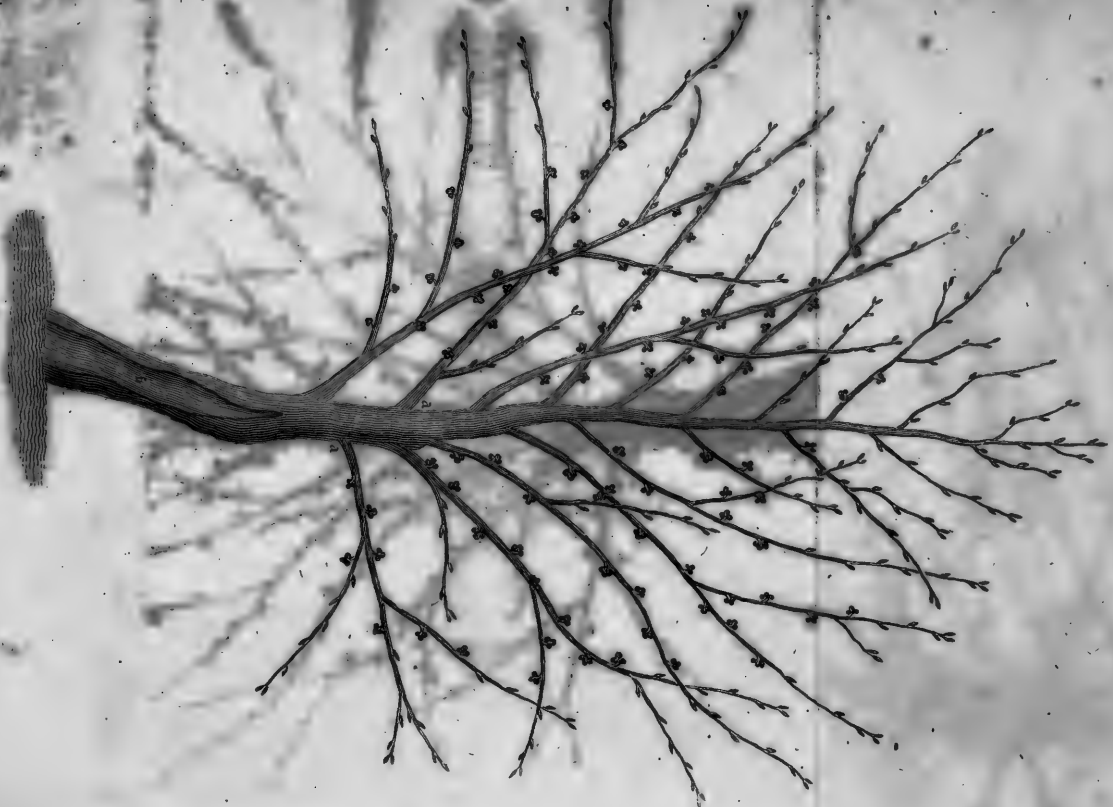


Plate VI



STANDARD CHERRY

Plat V





STYLIANUS AND THE STYLIANUS

Plate VI







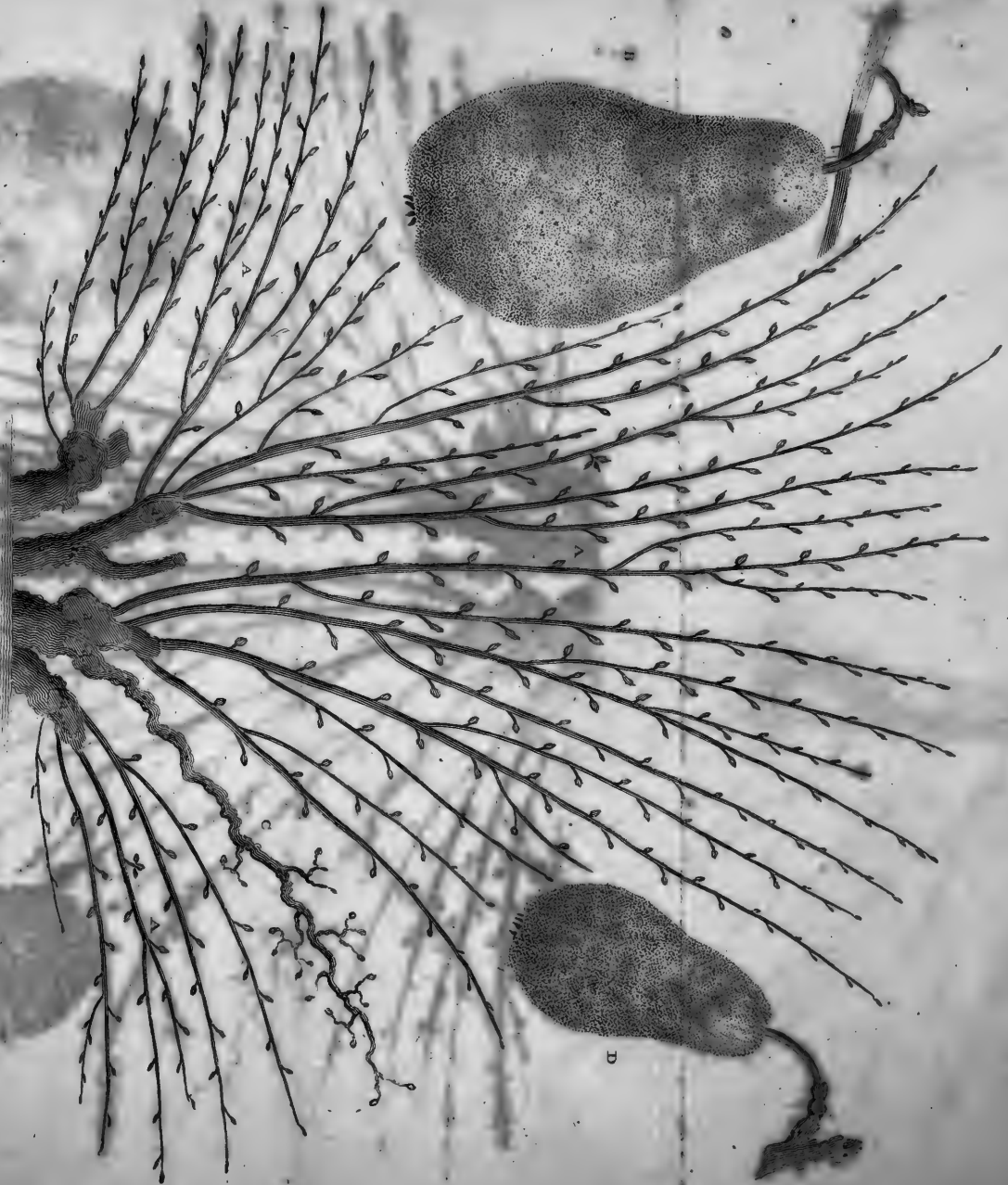
S: GERMAIN PEAR TREE

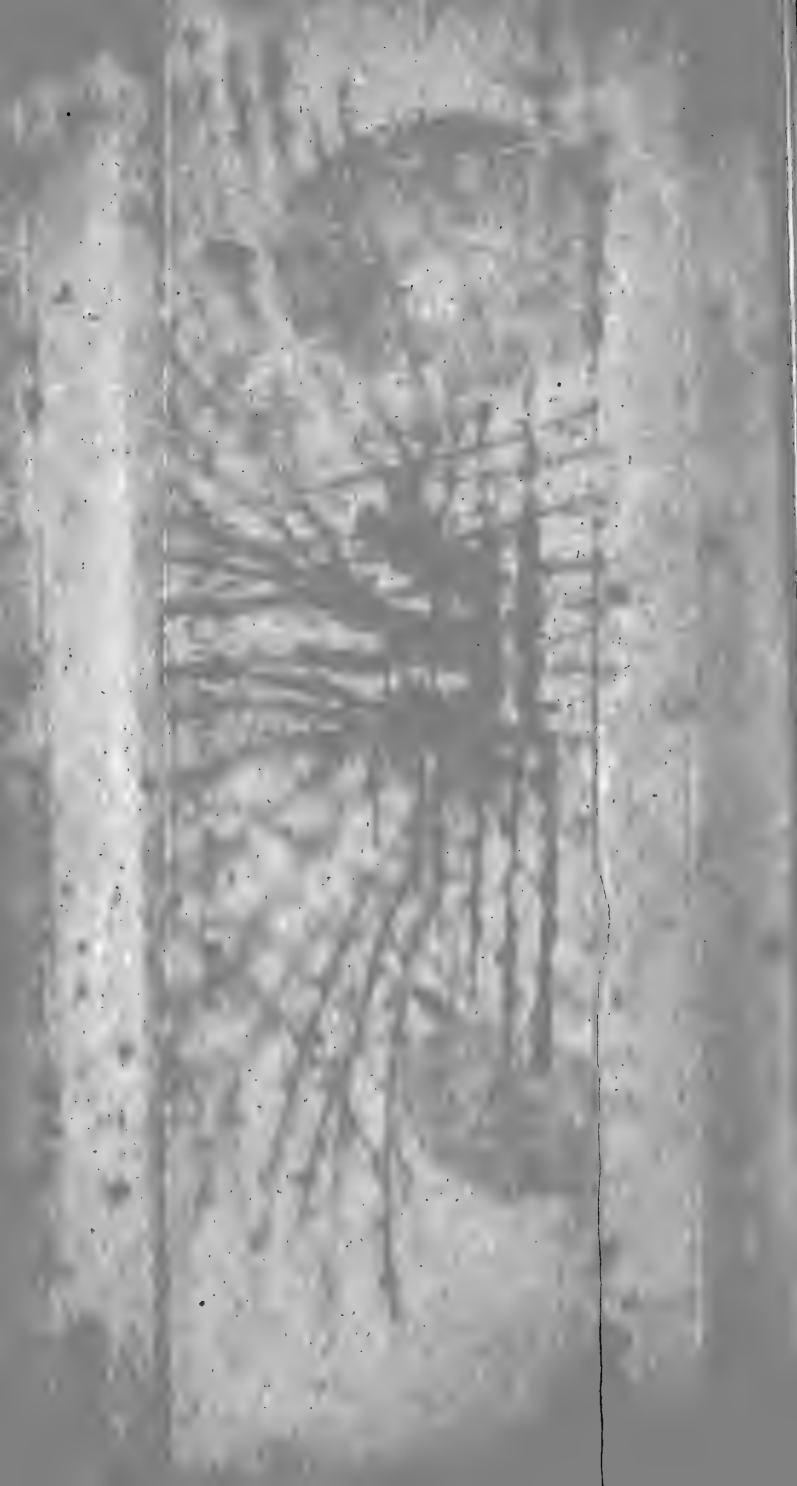
Plate VII





S: GERMAIN PEAR TREE



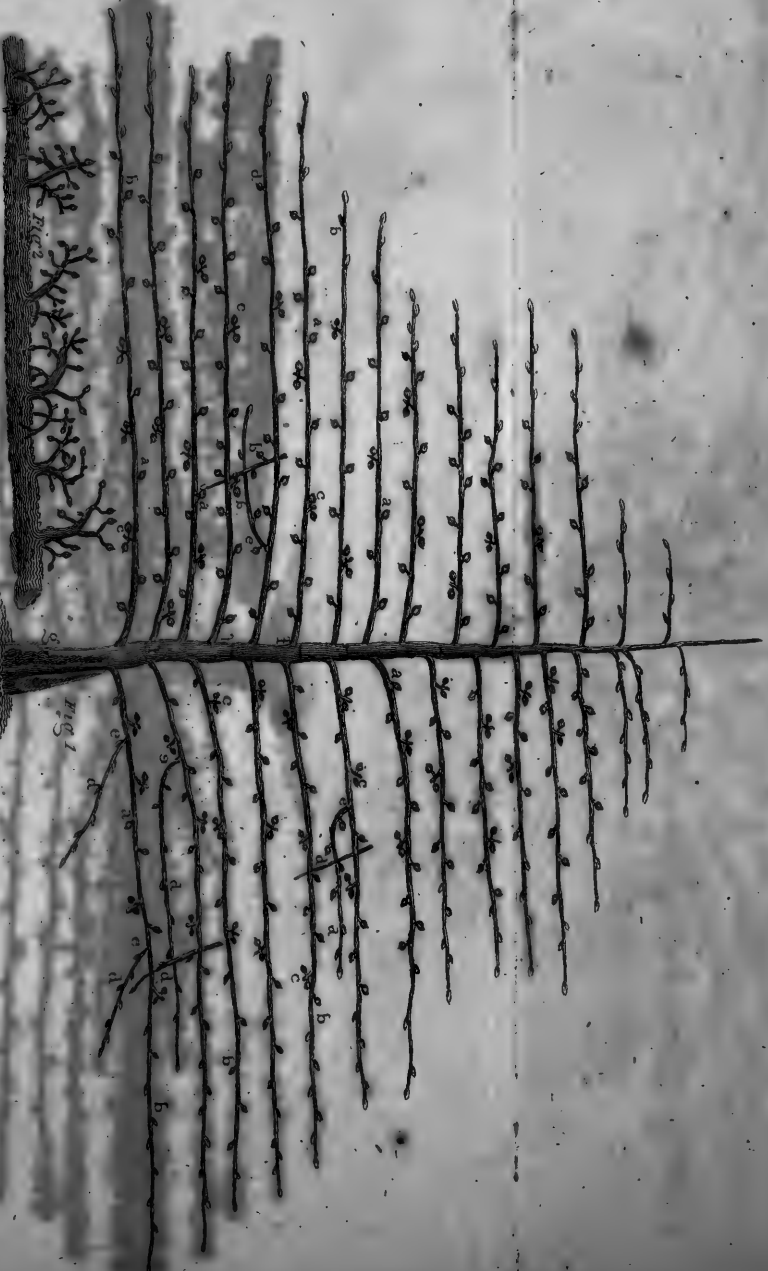


WESTERN BERTH, PLANT LIFE





WHITE BERRYED PEAR TREE.

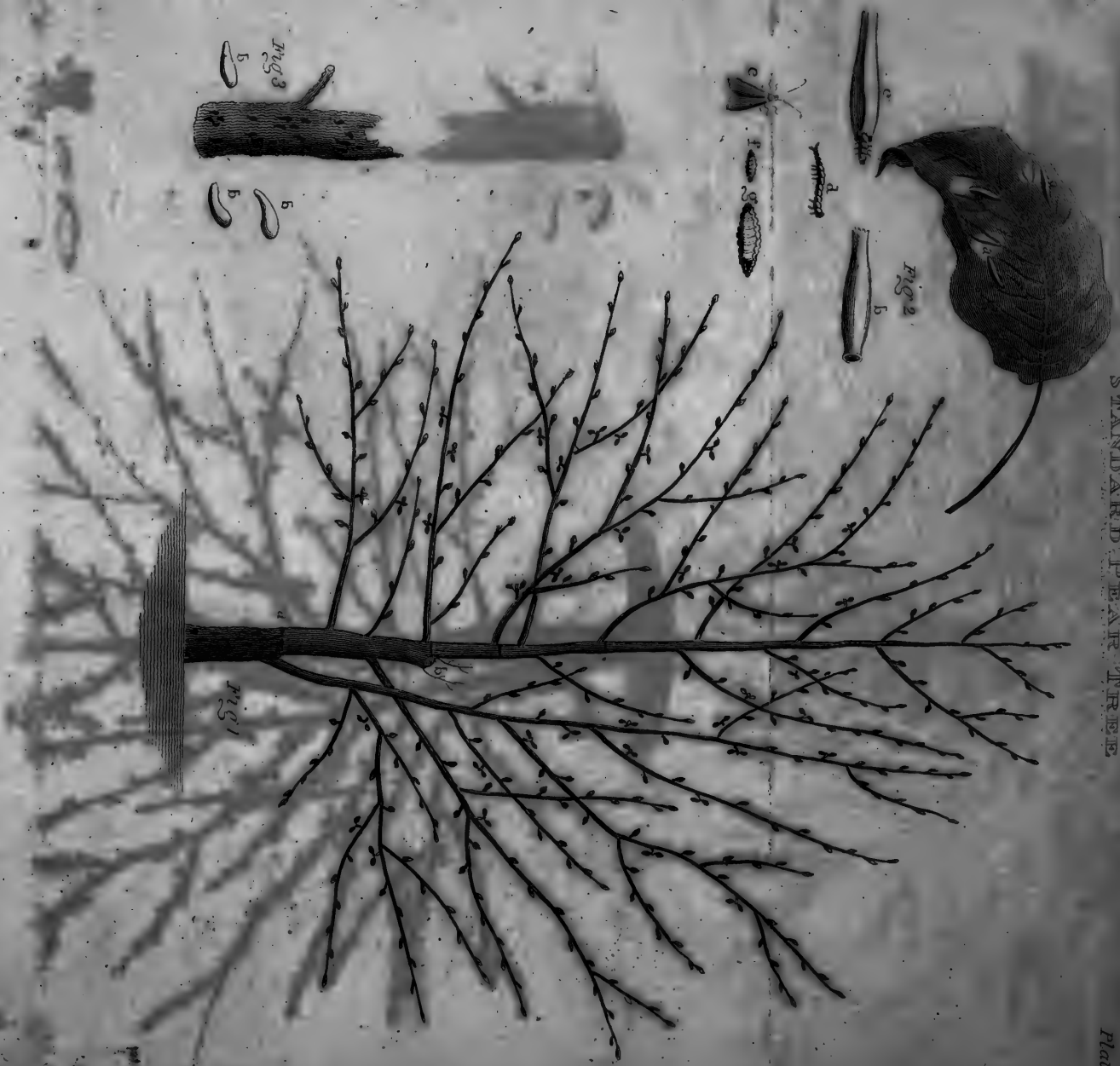




STANDARD PEACH TREE

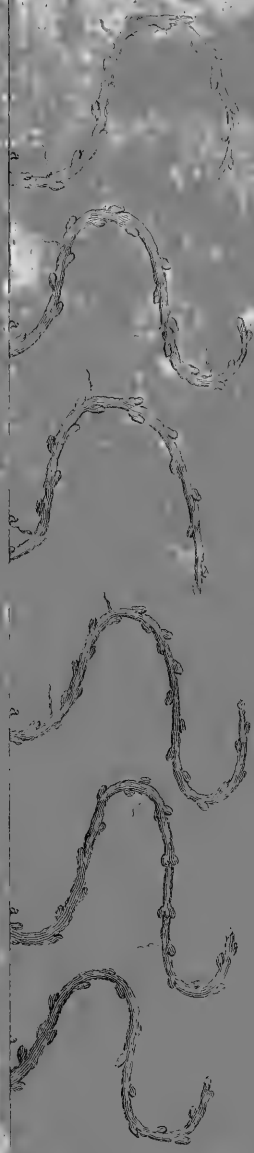
Plate IX







V. L. A. N. H. P.





VINE



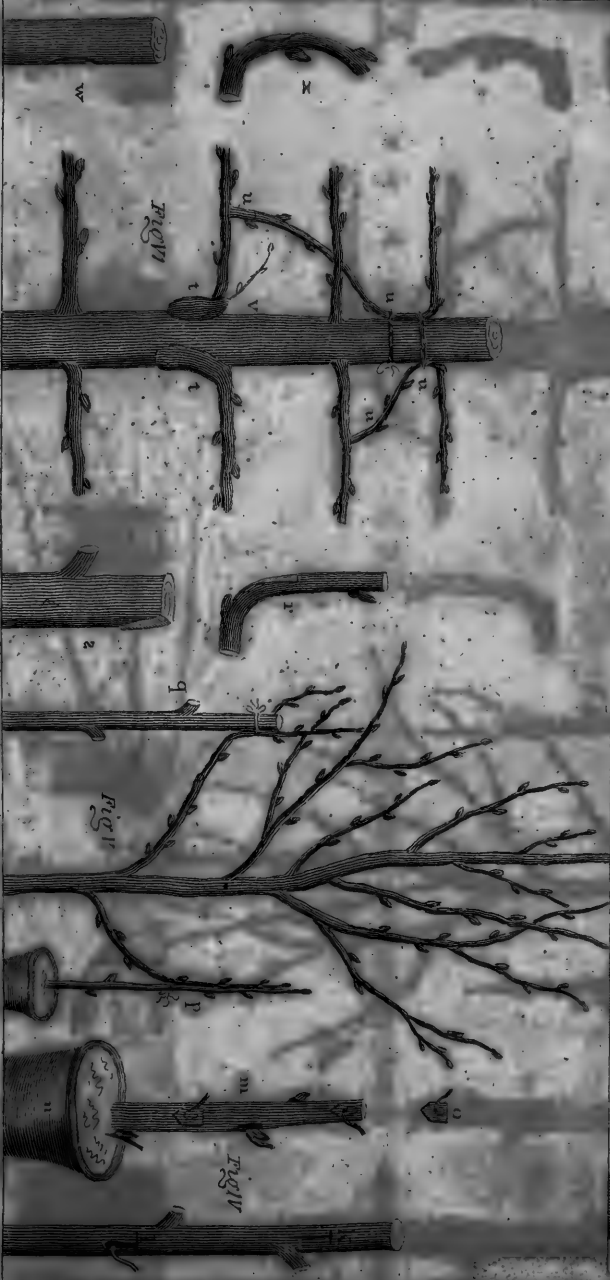
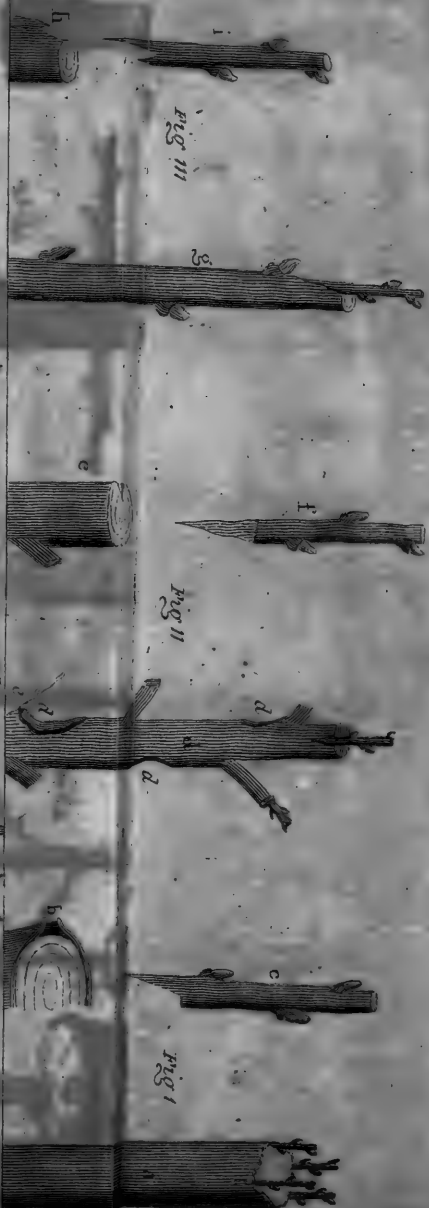


GRASPING AND INARCHING

Plate XI













TOOLS

Plate XIII

Fig. 1.

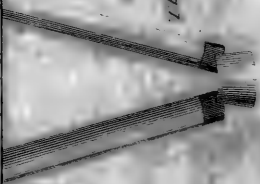


Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.

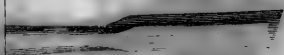


Fig. 6.

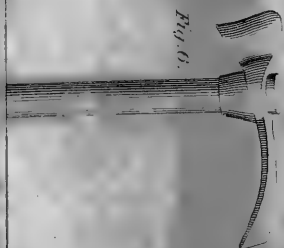
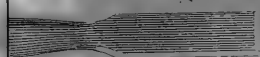


Fig. 7.



TOOLS

Plate XIII



Fig. 1



Fig. 2

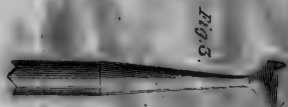


Fig. 3



Fig. 4



Fig. 5



Fig. 6

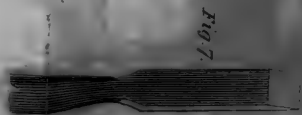


Fig. 7



Fig. 8



Fig. 9



Fig. 10

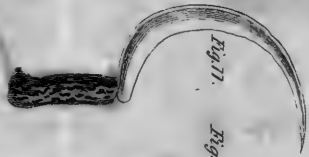


Fig. 11



Fig. 12

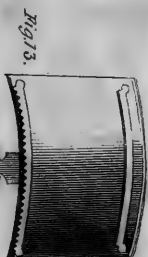


Fig. 13



Fig. 14



Fig. 15



Fig. 16



Fig. 1.

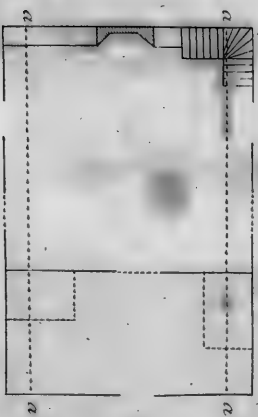


Fig. II.

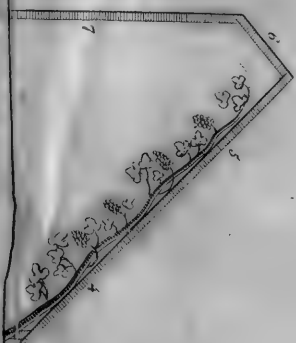


Fig. I.

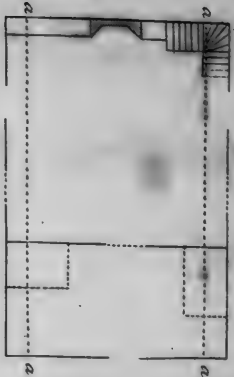


Fig. II.



Fig. III.

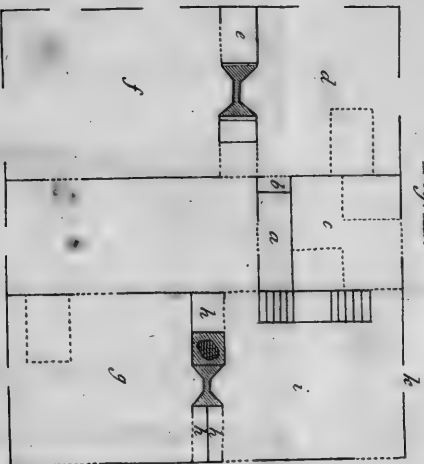
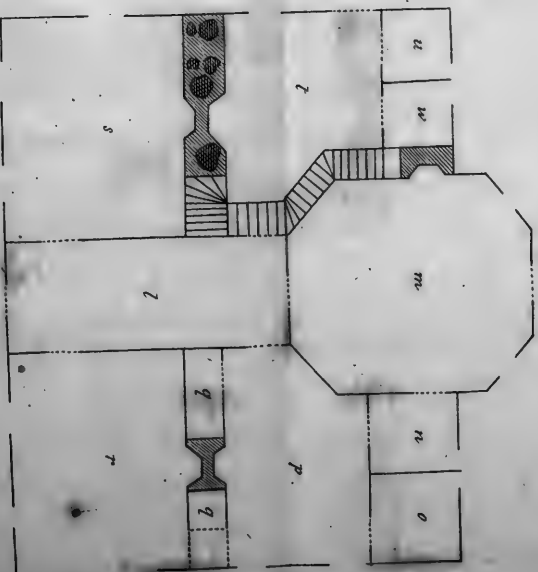
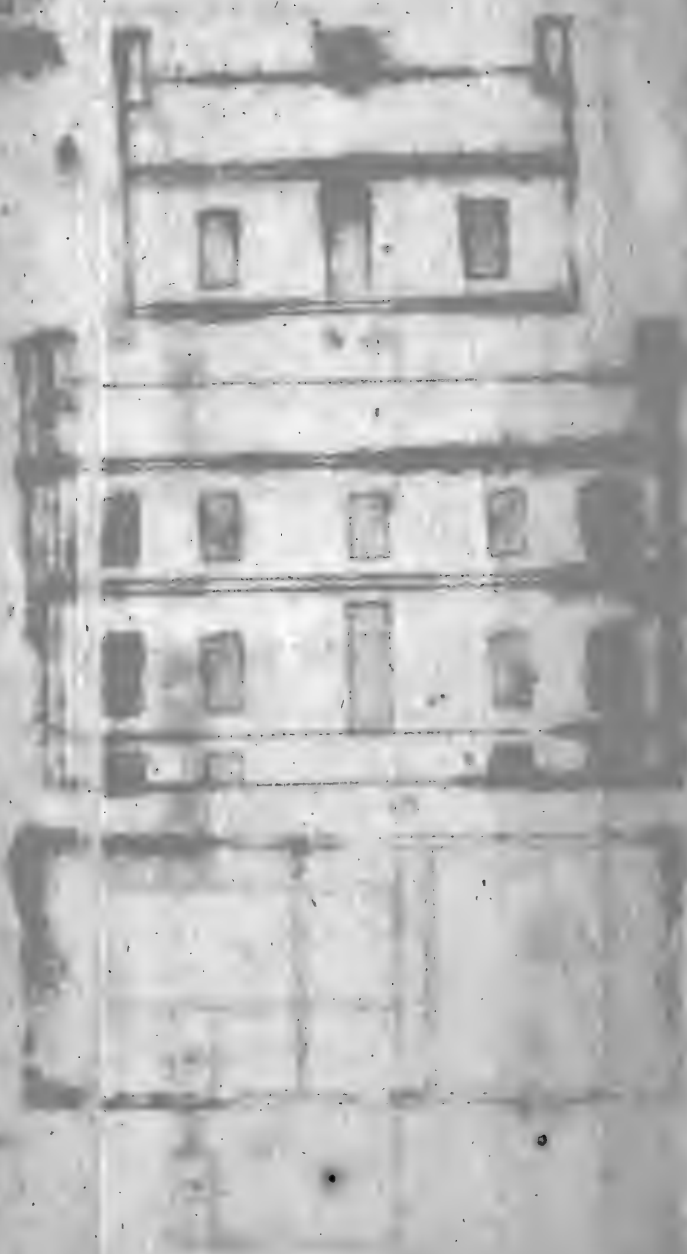


Fig. IV.





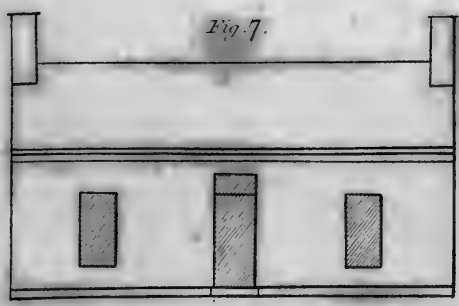


Fig. 7.

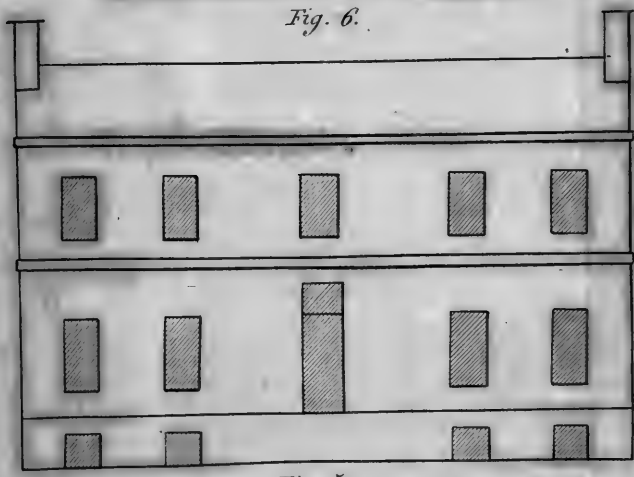


Fig. 6.

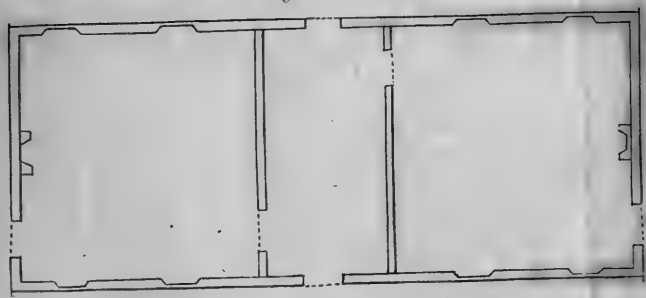
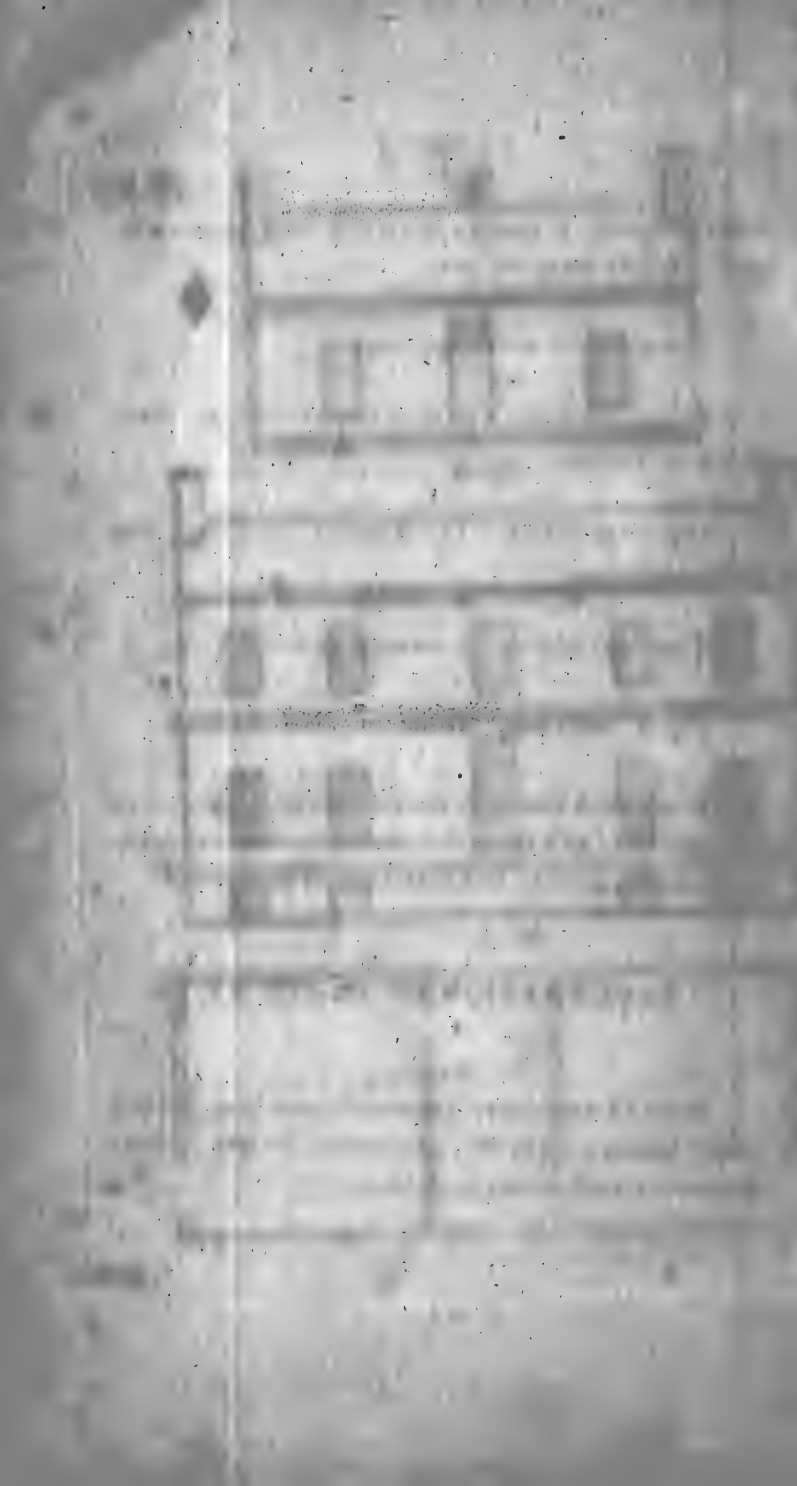


Fig. 5.



room 16 by 20: t. kitchen, with sink, and store-room
u. w. Whole front, 50 feet.

The areas are worth noticing:

Fig. 1, 192 feet. The least farmer's house: same
as a good cottage.

Fig. 2, 1080 feet. The farmer's habitation; the
most common.

Fig. 3, 1520 feet. A wealthy farmer's house.

Fig. 4, 2000 feet. Ditto.

It is a rural absurdity to entertain the idea of more
than one story to a farmer's habitation—or to any habi-
tation in the country, less than a proud palace.

EXPLANATION OF PLATE XV.

Fig. 5.

PLAN of a *two-story house*:—50 feet long, 20 feet
wide; passage, 10 by 20; two rooms, 20 feet square;
chimney in each room, at pleasure.

Fig. 6.

Elevation of the same *two-story habitation* of all show and little use ; but, withal, very inconvenient, and very costly.

Fig. 7.

Elevation of the farmer's *one-story habitation*, of which the *plan* is in pl. XIV, fig. 2. a size and form suitable to farms the most common, and which are cheap, strong, convenient, wholesome, and the best adapted for the purposes of a farmer's family, and the views and employments of country house-wifery.

Epitome, p. 142, } Speaks of the uses of the Vi-
144, } nery.

151, &c. of the size, &c. of the Vi-
nery.

152, refers to Pl. XIV.

If any more is wanted of Vineries, refer at large to Speachley's book treating of them in England, 8vo.

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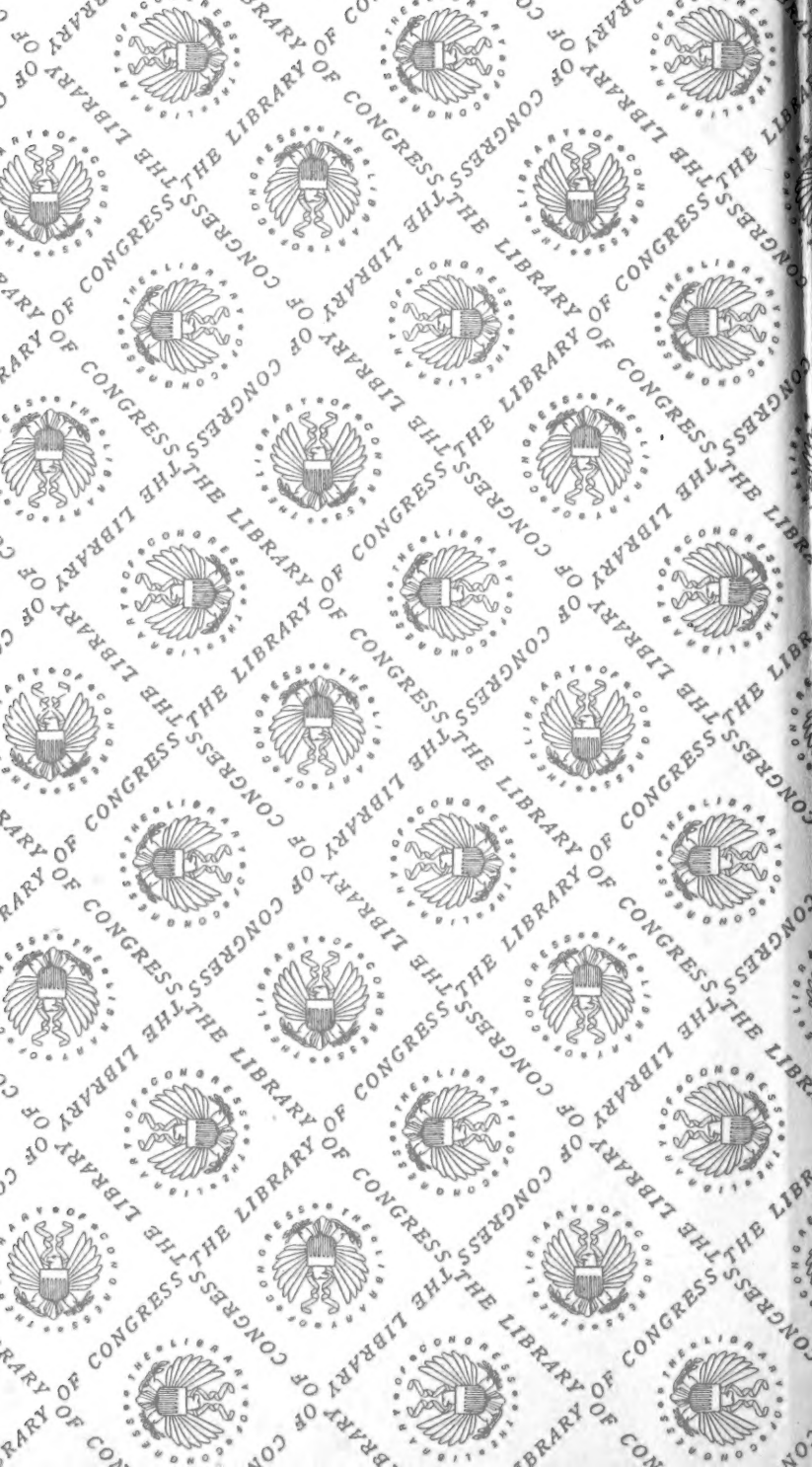
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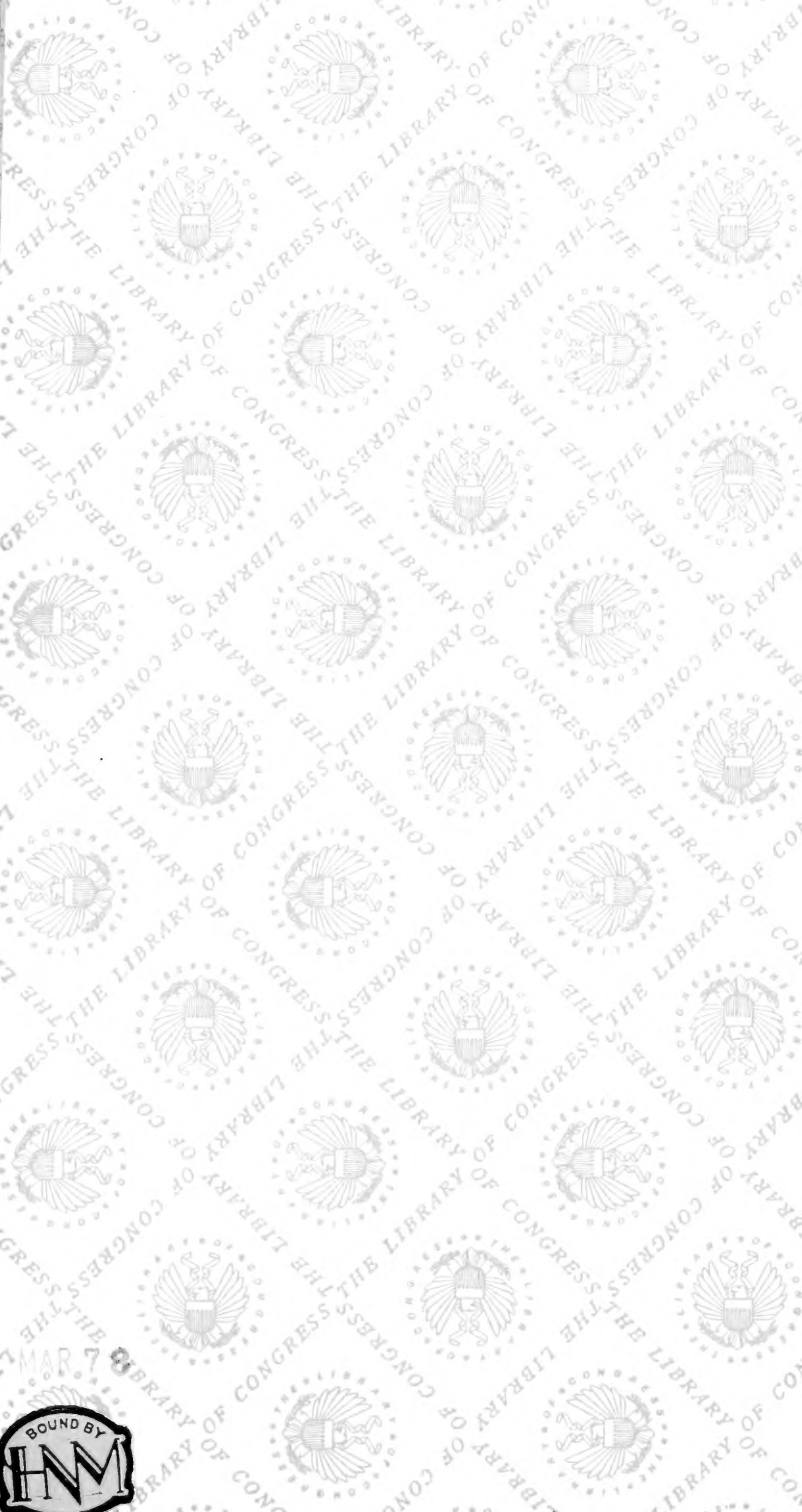
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THE END.







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